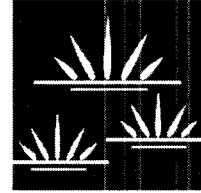


1200 FOOT
SCANNED

GLENN LUKOS ASSOCIATES



December 18, 2007

Mr. David Lowe, P.E.
Transportation Corridor Agencies
125 Pacifica, Suite 100
Irvine California 92618-3304

SUBJECT: CCC Jurisdictional Delineation for the Foothill Transportation Corridor - South,
Orange County, California.

Dear Mr. Lowe:

This letter report summarizes our findings of California Coastal Commission (CCC) jurisdiction for the above-referenced project.¹ The results of this CCC jurisdictional delineation combines data obtained from several previous delineations conducted from 1995 to 2004 with data obtained by Glenn Lukos Associates, Inc. (GLA) from 2007 site surveys. The following discussion provides a summary of prior delineations and the current effort to delineate the CCC jurisdiction for the A7-FEC-M (with minor modifications) Foothill Transportation Corridor - South alternative (FTC-S). The Study Area for the CCC delineation extended 100 feet beyond the disturbance limits for the proposed alternative and includes the proposed coastal mitigation site.

CCC jurisdictional wetland within the 206-acre CCC Study Area totals approximately 19.12 acres.

The project, as currently proposed, would permanently impact approximately 0.16 acre of CCC jurisdictional wetland and temporarily impact 7.70 acres of jurisdictional wetland.

The proposed coastal mitigation site does not currently exhibit wetland hydrology, hydric soils or a predominance of hydrophytes and is therefore considered appropriate for the one-parameter wetland creation proposed.

¹ This report presents our best effort at estimating the subject jurisdictional boundaries using the most up-to-date regulations and written policy and guidance from the regulatory agencies. Only the regulatory agencies can make a final determination of jurisdictional boundaries. If a final jurisdictional determination is required, GLA can assist in getting written confirmation of jurisdictional boundaries from the agencies.

I. DESCRIPTION OF THE STUDY AREA AND MITIGATION SITES

The southernmost 2.2 linear miles of the proposed FTC-S Project falls within the Coastal Zone (as depicted in Exhibit 2) and is referred to in this report as the CCC Study Area. The CCC Study Area is located in San Diego county on Camp Pendleton Marine Corps property that is leased to State Parks. The Study Area occurs within the San Mateo and San Onofre watersheds in the foothills of the Santa Ana and Santa Margarita Mountains. The two watersheds are briefly described below.

San Mateo Creek Watershed

The San Mateo Creek watershed covers nearly 347 sq km (134 sq mi) in Orange, Riverside and San Diego Counties. This watershed drains the south side of the Santa Ana Mountains and the east side of the Elsinore Mountains. Major tributaries to San Mateo Creek include Cristianitos Creek, Bluewater Canyon, Los Alamos Canyon and Tenaja Canyon. Existing land uses include urban residential, open space, vacant land and military uses. Elevations range from sea level at the ocean outfall to 914 m (3,000 ft) in the headwater areas. Slopes and grades range from 2 to 19 percent. Streams, drainages and canyons are abundant in the higher elevation regions of the watershed, with any drainage improvements primarily existing in the lower urbanized areas. The majority of the soils are clayey, with more permeable soils and sands existing nearer the rivers and streams.

Usable groundwater in the San Mateo Creek Basin exists in the valley fill alluvium of Cristianitos and San Mateo Creeks Valleys. Infiltration of stream flow into the underlying permeable sand and gravel provides most of the recharge to the aquifers in the San Mateo basin. Precipitation and infiltration of treated wastewater also contribute to recharge. Groundwater flows toward the coast and discharges into the Pacific Ocean where water-bearing deposits are in contact with the ocean.

San Onofre Creek Watershed

The San Onofre Creek watershed covers nearly 111 sq km (43 sq mi) and is entirely in San Diego County. It drains the east side of the Santa Margarita Mountains in the Cleveland National Forest, with MCB Camp Pendleton occupying nearly the entire watershed. Existing land uses include military-related uses and relatively small residential areas near the ocean. Elevations range from sea level at the ocean outfall to 853 m (2,800 ft) in the headwater areas. Slopes and grades are moderate to steep and range from 20 to 37 percent. Streams, drainages and canyons are abundant in the higher elevation regions of the watershed, with any drainage improvements primarily existing in the lower urbanized areas downstream from I-5. The soil types are

predominantly clayey in the west half of the watershed and much more permeable in the east half. Sandy soils also exist mainly near the streams and riverbeds.

II. METHODOLOGY

A. DELINEATION HISTORY

Jurisdictional delineations of aquatic features within the Foothill Transportation Corridor - South Study Area [Exhibits 1 & 2] for the purposes of CEQA and NEPA initially began in 1995. Although various alternatives have been deleted, modified or added since that time, the Study Area within the coastal zone has generally remained unchanged. From October 1995 to May 1996 a jurisdictional delineation was conducted by Michael Brandman Associates (MBA), which included mapping of aquatic features that fell within the coastal zone (1995/1996 MBA Delineation). The MBA delineation indicated that the CCC "requires the presence of only a single wetland parameter for an area to have jurisdictional status". Therefore, "CCC jurisdictional area [was] identified as identical to that of CDFG".

From July 2001 to September 2001 and from April 2004 to June 2004, GLA regulatory specialists further updated the delineation, which included re-examining aquatic features in the coastal zone as needed (2004 GLA Delineation). Then, from November 2004 to December 2004, the delineation was refined to incorporate input from the Corps during the field verification. The CCC wetland limits depicted in the April 6, 2005 Delineation Report and again in the September 26, 2005 Addendum, were still based upon the limits of Army Corps of Engineers or California Department of Fish and Game jurisdiction, which ever was greater. All features subject to either CDFG or Corps jurisdiction were presumed to be subject to CCC jurisdiction. Specifically, at the time that GLA refined the MBA 1995 delineation in 2001, sample points were collected to confirm the presence of three-parameter Corps' wetlands and field widths were measured for San Mateo and San Onofre Creeks to confirm the extent of Corps and CDFG jurisdiction. However, the limits of the non-linear jurisdictional areas were not modified at that time and therefore were still based upon the topography and vegetation boundaries visible on the aerial photography available in 1995. Additional visual inspections were conducted in 2001 and 2004 to verify that no additional areas of inundation were observed within the impact limits. The ultimate digital file used for analysis in the 2005 Delineation and Addendum Reports was produced in 2004 using a combination of shapes generated in 1995, lines buffered using widths measured in the field in 2001 and some refinement based on digital aerial photography.

In 2007, upon reviewing the CCC jurisdictional limits at a greater level of detail using higher-resolution ortho-rectified aerial photography and topography for the purposes of determining coastal consistency, it became apparent that the digital files used for analysis in 2005 were not

entirely consistent with the most recent digital base data available. For that reason, additional efforts were made to refine CCC jurisdictional limits where these inconsistencies were observed. The limits of the current jurisdictional areas were based upon the vegetation boundaries visible on aerial photography and confirmed in some locations using GPS as further described below. Refinements were limited to the disturbance area and a 100-foot buffer surrounding the disturbance limits. Table 1 provides a summary of dates during which fieldwork was conducted. Appendix A provides the qualifications of GLA regulatory specialists conducting the FTC-S delineation.

TABLE 1: Summary Of Dates During Which Fieldwork Was Conducted For FTC-S Jurisdictional Delineation

Consultant	Dates Field Work Was Conducted
Michael Brandman Associates	October 1995 to May 1996
Michael Brandman Associates	Wet Season 1996
Michael Brandman Associates	Wet Season 1997
Glenn Lukos Associates	July 2001 to September 2001
Glenn Lukos Associates	Wet Season 2001
Glenn Lukos Associates	October 2002 to November 2003 (portions overlapping with RMV)
Glenn Lukos Associates	April 2004 to June 2004
Glenn Lukos Associates	November 2004 through December 2004
Glenn Lukos Associates	July 2007
Glenn Lukos Associates	November 2007

B. SPECIFIC METHODOLOGY FOR DELINEATION CONDUCTED BY GLA IN 2007

Prior to beginning the 2007 delineation refinements, a series of 100-scale color aerial photographs, 100-scale topographic base maps of the alignments to be evaluated, the delineation maps associated with the prior delineations, soil surveys, ponding data collected during wet-season fairy shrimp surveys conducted in 1996, 1997, and 2001² and the USGS San Clemente topographic map were examined to determine the locations of potential areas of jurisdiction.

² Data was collected in part by Tony Bomkamp with GLA

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While in the field the limits for each jurisdictional wetland area were recorded onto the 100-scale color aerial photograph using visible landmarks including community margins or using a GeoXT GPS datalogger. Other data were recorded onto wetland data sheets that correspond to the location of observation points where presence/absence of indicators for hydrophytic vegetation, wetland hydrology and hydric soils were evaluated [Appendix B]. Any feature exhibiting at least one of the three indicators was classified as a CCC wetland.

Hydric soils, hydrology and vegetation were evaluated as set forth in the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual³ (Wetland Manual) and the 2006 Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region⁴ (Arid West Supplement). Field observations included excavation of a soil pit approximately 12-inches in diameter and 16-inches in depth. Soil was examined for the presence of hydric soil indicators as detailed in the Wetland Manual and Arid West Supplement. In addition, soil was examined for signs of subsurface wetland hydrology including saturation or oxidized rhizospheres.

Hydrology was also evaluated based on field observations from site visits conducted previously for delineation and fairy shrimp surveys. Additionally, historic aerial photographs were examined for signs of inundation or saturation. Details regarding the aerial photograph dates and relevant seasonal rainfall amounts are included in Table 2 below. Copies of the aerials examined are included as Appendix C.

³ Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

⁴ Environmental Laboratory. December 2006. Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, ERDC/EL TR-06016, U.S. Army Engineer Research and Development Center, Vicksburg, Mississippi.

TABLE 2: Summary of Historic Aerial Photographs Examined for Evidence of Wetland Hydrology⁵

Date of Photograph	Average Expected Rainfall by Photograph Date	Estimated Total Rainfall Received by Photograph Date
February 28, 1932	7.8"	16.1 "
January 3, 1941	5.4"	10.5"
February 21, 1958	7.8"	11.8"
March 30, 1967	9.7"	11.9"
January 31, 1970	5.4"	4.9"
January 13, 1975	5.4"	6.3"
April 21, 1977	10.7"	8.6"
January 9, 1987	5.4"	5.6"
January 2, 1995	5.4"	9.3"
April 18, 2006	10.7"	6.9"

As detailed in the Wetland Manual and Arid West Supplement, a dominance test and a prevalence index were used to determine if a hydrophytic vegetation community was present. The dominance test is met when more than 50 percent of the dominant plant species across all strata are rated OBL, FACW, or FAC. The prevalence index is a weighted-average wetland indicator status of all plant species in a given sampling plot, where each indicator status category is given a numeric code (OBL = 1, FACW = 2, FAC = 3, FACU = 4 and UPL = 5) and weighting is by abundance (percent cover).

The location of observation points was determined using previous vegetation mapping, existing topography and professional judgment in the field. All areas exhibiting low gradient or depressional topography was sampled, as were areas mapped as supporting or observed to support hydrophytic species. For essentially all of the coastal wetlands evaluated, the boundary between wetland and upland was marked by distinct boundaries, usually related to abrupt changes in topography or vegetation. In most instances, these abrupt changes made it possible to locate a clear and distinct wetland boundary without collecting numerous paired observation points.

⁵ Data compiled from Western Regional Climate Center database accessed online on December 12, 2007 via <http://www.wrcc.dri.edu/>. Precipitation totals for each month including the month in which the aerial photograph was taken were combined beginning from the prior October. This sum was then averaged for both the Laguna Beach and Oceanside Marina Stations, which are each approximately 16.5 miles from San Mateo Creek.

Depressional wetlands, such as vernal pools, are defined by the 1987 Manual as "Problem Areas" because various indicators for wetland vegetation and/or hydrology may be absent during summer or fall or completely absent during years of below-average rainfall. Although such areas were not formally delineated during the period of ponding when the wet-season fairy shrimp surveys were performed, the data collected during these surveys was used to augment the delineation data thereby providing for hydrological data not available during the July – September window during which the 2001 delineation was performed. The limits of these features were not modified during the current delineation efforts because the original hydrological data was collected during a more typical rainy season and more accurately reflects the maximum extent of ponding.

Where the anticipated disturbance limits affected only portions of a wetland, the observation points were concentrated in areas of potential impacts as indicted by the disturbance limits. For example, observation points associated with the San Mateo Marsh – East of I-5 were concentrated along the southern boundary of the wetland as the northern boundary is well removed from the proposed disturbance limits.

Enclosed is a 1:24,000 USGS map that depicts the topography of the site [Exhibit 3] and two 400-scale maps [Exhibit 4A and 4B] that depict aquatic features subject to CCC jurisdiction on an aerial photograph and on a topographic map. Jurisdictional wetland totals strictly represent the surface area of each feature and do not include an assessment of the relative quality of each feature, however a functional assessment has been included as Appendix D. An aerial photograph and a topographic map depicting the entire CCC Study Area at 400-scale have been included in Appendix E.

The United States Soil Conservation Service (SCS)⁶ has mapped the following soil types as occurring in the general vicinity of the project site:

Soil Unit	Soil Taxonomy	Description
Gaviota fine sandy loam	Lithic Xerorthents	30-50% slopes; consists of well drained, shallow fine sandy loams that formed in material weathered from marine sandstone; found on uplands.
Marina loamy coarse sand	Alfic Xeropsamments	2 to 30% slopes; consists of somewhat excessively drained, very deep loamy coarse sands derived from weakly consolidated to noncoherent ferruginous eolian sand; found on old beach ridges.

⁶ SCS is now known as the National Resource Conservation Service or NRCS.

Soil Unit	Soil Taxonomy	Description
Riverwash	No Soil Taxonomy	Consists of unconsolidated alluvium, generally stratified and varying widely in texture, recently deposited in intermittent stream, and subject to frequent changes through stream flow.
Salinas clay loam	Calcic Pachic Haploxerolls	0 to 2 % slopes; consist of well drained and moderately well drained clay loams that formed in sediments washed from Diablo, Linne, Las Flores, Huerhuero and Olivenhain soils; found on flood plains and alluvial fans.
Tidal Flats	No Soil Taxonomy	Occurs as nearly level areas adjacent to bays and lagoons along the coast, periodically covered by tidal overflow. Consists of stratified clayey to sandy deposits; poorly drained and high in salts.
Terrace Escarpments	No Soil Taxonomy	Consists of steep to very steep escarpments, occurring on the nearly even fronts of terraces or alluvial fans; loamy or gravelly soil over soft marine sandstone, shale or gravelly sediments.
Tujunga sand	Typic Xeropsamments	0-5% slopes; consists of very deep, excessively drained sands derived from granitic alluvium; found on alluvial fans and flood plains.
Visalia sandy loam	Pachic Haploxerolls	0 to 2% slopes; Consists of moderately well drained, very deep sandy loams derived from granitic alluvium; found on alluvial fans and flood plains.

Hydric soils are those that are "...wet long enough to periodically produce anaerobic conditions, thereby influencing plant growth⁷." Thus the presence of a hydric soil may be a significant indicator of the presence of wetlands. With regard to the soil types identified in the table above, none of the soil types are hydric as listed in the SCS's publication, Hydric Soils of the United States⁸. However, Riverwash, Tidal Flats, Tujunga sands within intermittent streams and floodplains, and Visalia series within flood plains may be hydric as listed in the County of San Diego local lists of hydric soils⁹. The local lists are the most specific and when used with the

⁷ Tiner, R.W. 1999. *Wetland Indicators: A Guide to Wetland Identification, Delineation, Classification and Mapping*. Lewis Publishers: Boca Raton, Florida.

⁸ United States Department of Agriculture, Soil Conservation Service. 1991. Hydric Soils of the United States, 3rd Edition, Miscellaneous Publication Number 1491. (In cooperation with the National Technical Committee for Hydric Soils.)

⁹ United States Department of Agriculture, Soil Conservation Service. 1992. Hydric Soils List, San Diego Field Office, Section II, Field Office Technical Guide. Davis, California.

local soil survey report map sheets provide the potential geographic distribution of hydric soils within a given area although field evidence is necessary to verify the actual distribution.

III. CCC JURISDICTION

As indicated on Exhibit 3, the Foothill Transportation Corridor – South Project for the Coastal Consistency Certification is within the “coastal zone”. Pursuant to the California Coastal Act of 1976 (Public Resources Code Section 30000 et seq.), the CCC regulates land uses within or adjacent to environmentally sensitive areas (ESAs) within the “coastal zone.”

Public Resources Code Section 30107.5 defines an ESA as:

...any area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which could be easily disturbed or degraded by human activities and developments.

Included within this definition are wetlands, estuaries, streams, riparian habitats, lakes, and portions of open coastal waters that meet the rare or valuable habitat criteria. The CCC regulates the diking, filling, or dredging of wetlands, or lands within 100 feet of wetlands, within the coastal zone. Public Resources Code Section 30121 defines coastal “wetlands” as lands “within the coastal zone which may be covered periodically or permanently with shallow water.” The 1981 CCC Statewide Interpretive Guidelines state that hydric soils and hydrophytic vegetation:

...are useful indicators of wetland conditions, but the presence or absence of hydric soils and/or hydrophytes alone are not necessarily determinative when the Commission identifies wetlands under the Coastal Act. In the past, the Commission has considered all relevant information in making such determinations and relied upon the advice and judgment of experts before reaching its own independent conclusion as to whether a particular area will be considered wetland under the Coastal Act. The Commission intends to continue to follow this policy.

While wetlands are defined by the concurrent presence of three indicators (wetland hydrology, hydrophytic vegetation, and hydric soils) for the purpose of federal regulatory programs administered by the U.S. Army Corps of Engineers (Corps), the CCC, according to the guidelines quoted above, only requires the presence of one of these indicators in the positive determination of coastal wetlands. As such, the CCC also includes riparian habitats that exhibit a

predominance of hydrophytic vegetation within their definition of coastal wetlands. Riparian vegetation is defined in the 1981 CCC Statewide Interpretive Guidelines as “an association of plant species which grows adjacent to freshwater watercourses, including perennial and intermittent streams, lakes, and other bodies of fresh water.” Riparian habitats may encompass wetland areas, but may also extend beyond those areas.

IV. RESULTS

A. EXISTING CONDITIONS

CCC wetland jurisdiction within the CCC Study Area totals 19.12 acres (Table 3). The location and existing conditions of the wetlands are depicted on Exhibits 4A and 4B. Site photographs are included as Exhibit 5.

TABLE 3: CCC Wetlands Within SOCTIIP Study Area

Feature	Type	Habitat Type	Acres
FE/7-SAN MATEO CREEK	Palustrine/ Estuarine ¹	Arroyo Willow Forest	9.78
FE/7-SAN MATEO MARSH- EAST of I5	Palustrine	Arroyo Willow Forest	3.92
FE/7-SAN MATEO MARSH- WEST of I5	Estuarine	Arroyo Willow Forest	1.97
FE/7-SAN MATEO MARSH- WEST of I5	Estuarine	Mule Fat Scrub	1.04
FE/7-VM20	Palustrine	Vernal Pool	0.05
FE/7-VP3	Palustrine	Vernal Pool	0.18
SAN ONOFRE CREEK	Palustrine/ Estuarine ¹	Coastal Freshwater Marsh	0.51
SAN ONOFRE CREEK	Palustrine/ Estuarine ¹	Arroyo Willow forest	1.67
TOTAL	NA		19.12

¹The portion of these creeks that exhibit ocean-derived salinities in excess of 0.5 ppt would be classified as estuarine. The acreage figure reflects the total area of palustrine and estuarine habitat. Determination of the precise boundary between these habitat types would require additional field mapping and would change from year to year depending on various factors including precipitation.

San Mateo Creek

The San Mateo Creek/Wetland Complex consists of the braided channel of San Mateo Creek and includes areas of the low-flow channel, which are supported by base flow throughout the year. The channel varies from 200 to 1100 feet wide and is composed of coarse sand with cobbles and boulders. There are similar but narrower braids throughout the channel bed with several islands that support both annual and perennial vegetation including mule fat (*Baccharis salicifolia*, FACW-), narrow-leaved willow (*Salix exigua*, OBL), arroyo willow (*Salix lasiolepis*, FACW), fennel (*Foeniculum vulgare*, FACU), rabbitsfoot grass (*Polypogon monspeliensis*, FACW+), red and ripgut brome (*Bromus rubens* and *Bromus diandrus*, UPL), white clover (*Melilotis alba*, FACU), and curly dock (*Rumex crispus*, FACW-). In general, vegetation within the drainage varies from mature willow woodland to mule fat scrub and open cobbly wash. Wetland areas are vegetated with yellow willow (*Salix lucida*, FACW), arroyo willow (*Salix lasiolepis*, FACW), cattail (*Typha domingensis*, OBL), spike rush (*Eleocharis acicularis*, OBL), bulrush (*Scirpus americanus*, OBL), narrow leafed willow (*Salix exigua*, OBL), mule fat (*Baccharis salicifolia*, FACW-), sedge (*Cyperus* sp., ≥FACW) iceplant (*Carpobrotus* sp., UPL), saltgrass (*Distichlis spicata*, FACW), celery (*Apium graveolens*, FACW), cudweed (*Gnathaliun luteo-album* (FACW-), white alder (*Alnus rhombifolia*, FACW), horsetail (*Equisetum* sp., ≥FAC), and rabbitfoot grass (*Polypogon monspeliensis*, FACW+).

The presence of an OHWM was indicated by the presence of litter and debris, clear line impressed upon the bank, destruction of terrestrial vegetation and change in soil character. CCC jurisdiction associated with San Mateo Creek within the study area totals 9.78 acres (Table 3), all of which consists of at least one-parameter wetland.

San Mateo Marsh East of I-5

Inland from Interstate-5, a portion of San Mateo Marsh, separated from San Mateo creek by agricultural fields is located immediately east of Interstate-5 and north of Basilone Road. This area consists of willow riparian forest and brackish marsh. The willow riparian forest is dominated by arroyo willow (*Salix lasiolepis*, FACW) with an understory of giant nettle (*Urtica dioica*, FACW). The wettest areas within the willow forest supports fruit bur-reed (*Sparganium eurycarpum*, OBL), Olney's bulrush (*Scirpus americanus*, OBL), red-rooted umbrella sedge (*Cyperus erythrorhizos*, OBL), straw colored umbrella sedge (*Cyperus strigosus*, FACW), and California bulrush (*Scirpus californicus*, OBL). Sediment deposits and moderate shelving indicated the presence of surface hydrology. Soils were composed of low chroma silt layers interbedded with layers of fine sand and buried organics.

CCC jurisdiction associated with San Mateo Marsh – East of I-5 within the study area totals 3.92 acres (Table 3), all of which consists of at least one-parameter wetland.

San Mateo Marsh West of I-5

San Mateo Marsh is a coastal freshwater marsh that is located near the southern end of the study area where San Mateo Creek discharges into the ocean. The marsh is a mosaic of wetland/riparian habitat that is located on both the coastal and inland sides of Interstate-5. The San Mateo Marsh - West, on the coastal side of Interstate-5, consists of willow riparian forest, southern sycamore riparian forest, freshwater marsh dominated by hardstem bulrush (*Scirpus acutus*, OBL) and southern cattail (*Typha domingensis*, OBL), brackish marsh dominated by Olney's bulrush (*Scirpus americanus*, OBL), and small areas of coastal salt marsh dominated by fleshy jaumea (*Jaumea carnosa*, OBL) and pickleweed (*Salicornia virginica*, OBL).

CCC jurisdiction associated with San Mateo Marsh – West of I-5 within the study area totals 3.01 acres (1.97 acres consists of an arroyo willow forest and 1.04 acres consists of mule fat scrub – see Table 3), all of which consists of at least one-parameter wetland.

Vernal Marsh 20 (FE/7-VM 20)

Vernal Marsh FE-VM 20 is located adjacent to the Interstate-5 off ramp at Basilone Road. The basin appears to have been created by construction of the offramp and supports hydrophytic vegetation including mule fat (*Baccharis salicifolia*, FACW), arroyo willow (*Salix lasiolepis*, FACW), western goldenrod (*Euthamia occidentalis*, OBL), and salt marsh fleabane (*Pluchea odorata*, OBL). The basin was observed to be ponded from February 13, 2001 to February 21, 2001 meeting criteria 3 for hydric soils.

CCC jurisdiction associated with Vernal Marsh FE/7-VM20 within the study area totals 0.05 acres (Table 3), all of which consists of three-parameter wetland.

Vernal Pool 3 (FE/7-VP 3)

Vernal Pool FE-VP 3 is a basin which covers 0.18 acres vegetated with dwarf woolly-marbles (*Psilocarphus brevissimus*, OBL), rabbitfoot grass (*Polypogon monspeliensis*, FACW), Boccone's sand spurry (*Spergularia bocconei*, FAC), smooth cat's ear (*Hypochaeris glabra*, UPL), and mule fat (*Baccharis salicifolia*, FACW). The basin was observed to be ponded from February 13, 2001 to February 21, 2001 meeting criteria 3 for hydric soils.

CCC jurisdiction associated with Vernal Pool FE/7-VP3 within the study area totals 0.18 acres (Table 3), all of which consists of three-parameter wetland.

San Onofre Creek

The low flow channels within the creek are dominated by herbaceous cover including water-cress (*Rorippa nasturtium-aquaticum*, OBL) yellow waterweed (*Ludwigia peploides*, OBL), water speedwell (*Veronica anagallis-aquatica*, OBL), southern cattail (*Typha domingensis*, OBL), and common monkey flower (*Mimulus guttatus*, OBL). Dominant overstory vegetation includes western sycamore (*Platanus racemosa*, FACW) and arroyo willow (*Salix lasiolepis*, FACW).

CCC jurisdiction associated with San Onofre Creek within the Study Area totals 2.18 acres (of which 0.51 acre consists of coastal freshwater marsh and 1.67 acres consists an arroyo willow forest – see Table 3), all of which consists of three-parameter wetland.

Former Agricultural Fields/Active Military Training Area

Examination of the 1932, 1941 and 1958 aerial photographs indicate that portions of the former agricultural field/military training area contain floodplain exhibiting surface flow patterns caused by wet year runoff. However, in 1967, during construction of Interstate 5 and Toby's Road, this portion of the agricultural field area was effectively removed from the floodplain of San Mateo Creek. Post-construction circa 1967, Toby's Road elevation was approximately eight feet above the creek bottom, and no inundation or saturation is apparent in the aerials of the subject site after this date.

Additionally, data pit location 8, within the former agricultural field, and data pit location 21, within the vegetation between the former agricultural field and San Mateo Creek, exhibit the same elevation and soil composition. The patch of elderberry woodland that exists between San Mateo Creek and the former agricultural field, represented in data pit 21, does not exhibit a predominance of hydrophytic vegetation. It is reasonable to assume that the former agricultural field might exhibit similar upland vegetation composition over time.

As a result of these observations, the former agricultural field is not anticipated to meet any one of the three wetland parameters of soils, vegetation or hydrology in the future and has not been classified as a potential CCC wetland.

Proposed Coastal Zone Mitigation Area

The proposed 1.0-acre coastal zone mitigation site currently consists of an abandoned agricultural field and a dirt road [Exhibit 6]. The site does not exhibit any of the three wetland parameters. As indicated in wetland datasheet # 8, the field supports scarce London rocket (*Sisymbrium irio*, UPL), wild oat (*Avena fatua*, UPL), cultivated barley (*Hordeum vulgare*, UPL) and horseweed (*Conyza Canadensis*, FAC). The soils consist of 10YR 2/2 fine silty clay exhibiting no redoximorphic features. No surface or subsurface hydrology has been observed (See Appendix A: Datasheet 8). The field is no longer actively used for agriculture.

B. IMPACT ANALYSIS

Impact totals provided below represent only the surface area expected to be subject to regulation by the CCC and do not represent a relative assessment of function. This analysis assumes that all features within the disturbance limits are temporarily disturbed, except as otherwise noted on Exhibits 4A and 4B. For bridges, the small area of impact where the support columns are founded into the ground have been included as permanent impacts, while the remaining bridge right of way is assumed to be temporarily impacted for piling installation. The bridge structure will span over the open terrain and shading impacts have been determined to be de minimus; there is no permanent impact from the bridge structure beyond the support columns [See Appendix F]. Permanent impacts to San Mateo Marsh- East of I5 result from the re-alignment of Toby's Road.

Exhibits 4A and 4B depict the location of proposed permanent and temporary impacts to CCC 1-parameter wetland within the coastal zone. Permanent impacts consist of those wetlands that will remain impacted longer than 12 months. Permanent impacts to CCC 1-parameter wetland total 0.16 acre (Table 4). Temporary impacts to CCC 1-parameter wetland total 7.70 acres (Table 5).

TABLE 4: Permanent Impacts to CCC Wetlands

Feature	Type	Habitat Type	Acres
FE/7-SAN MATEO CREEK	Palustrine/ Estuarine	Arroyo Willow Forest	0.006
FE/7-SAN MATEO MARSH- EAST of I-5	Paulstrine	Arroyo Willow Forest	0.147
SAN ONOFRE CREEK	Palustrine/ Estuarine	Arroyo Willow Forest	0.005
TOTAL		NA	0.16

TABLE 5: Temporary Impacts to CCC Wetlands

Feature	Type	Habitat Type	Acres
FE/7-SAN MATEO CREEK	Palustrine/ Estuarine	Arroyo Willow Forest	5.75
FE/7-SAN MATEO MARSH- EAST of I-5	Palustrine	Arroyo Willow Forest	0.89
SAN ONOFRE CREEK	Palustrine/ Estuarine	Arroyo Willow Forest	0.63
SAN ONOFRE CREEK	Palustrine/ Estuarine	Coastal Freshwater Marsh	0.42
TOTAL	NA		7.70

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B. Regulatory Authorization

CCC 1-parameter wetland at the site includes all areas that are permanently or periodically inundated or saturated close to the soil surface occurring within the coastal zone. The CCC will consider direct impacts to these features as well as potential indirect impacts due to shading where such impacts affect portions of wetlands or riparian habitat.

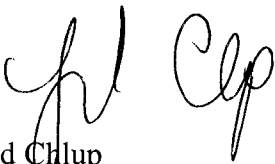
C. Potential Mitigation


Permanent impacts to 0.16 acre of CCC jurisdiction will be mitigated through the creation of 1.0 acre of southern willow woodland within the coastal zone in the vicinity of San Mateo Creek (6.25:1 mitigation ratio). Temporary impact areas will be revegetated at a 1:1 ratio.

If you have any questions about this letter report, please contact either Ingrid Chlup or Thienan Ly at (949) 837-0404.

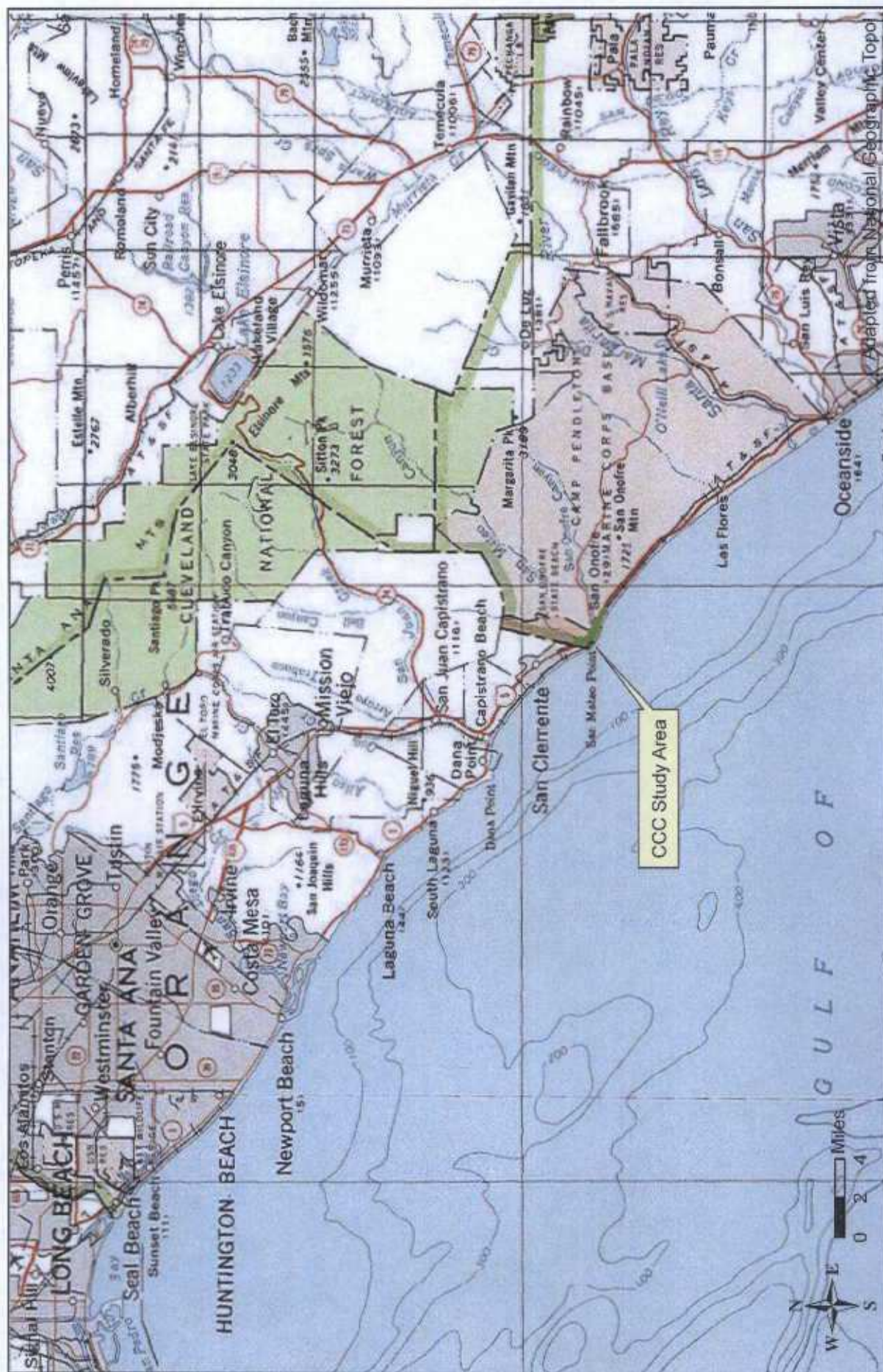
Sincerely,

GLENN LUKOS ASSOCIATES, INC.


Ingrid Chlup
Regulatory Specialist


Thienan Ly
Regulatory Specialist

s:gla_ccc_delineation_121607.doc

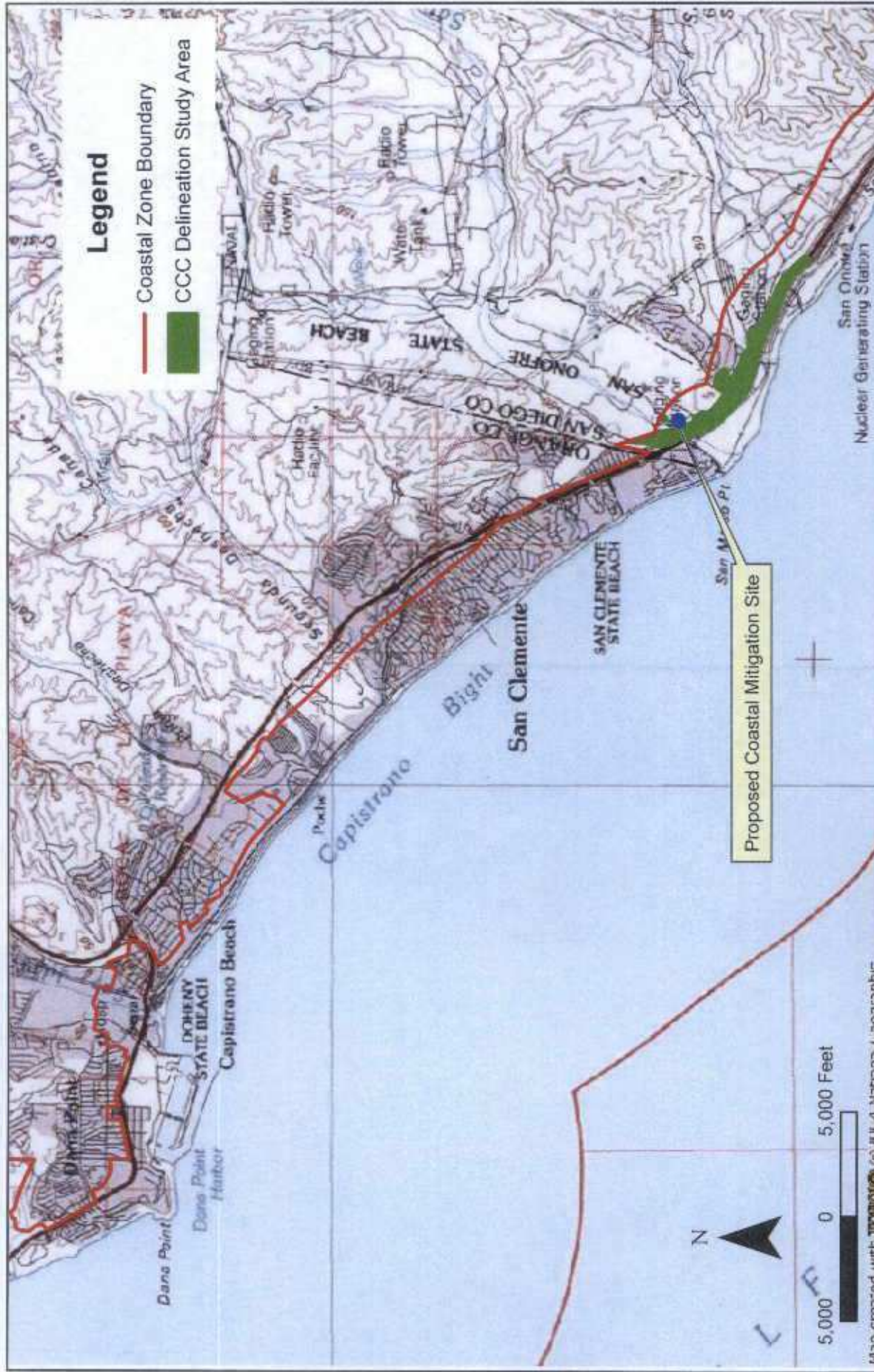


GLENN LUKOS ASSOCIATES

EXHIBIT 1

CCC PORTION OF FTC-S

Regional Map

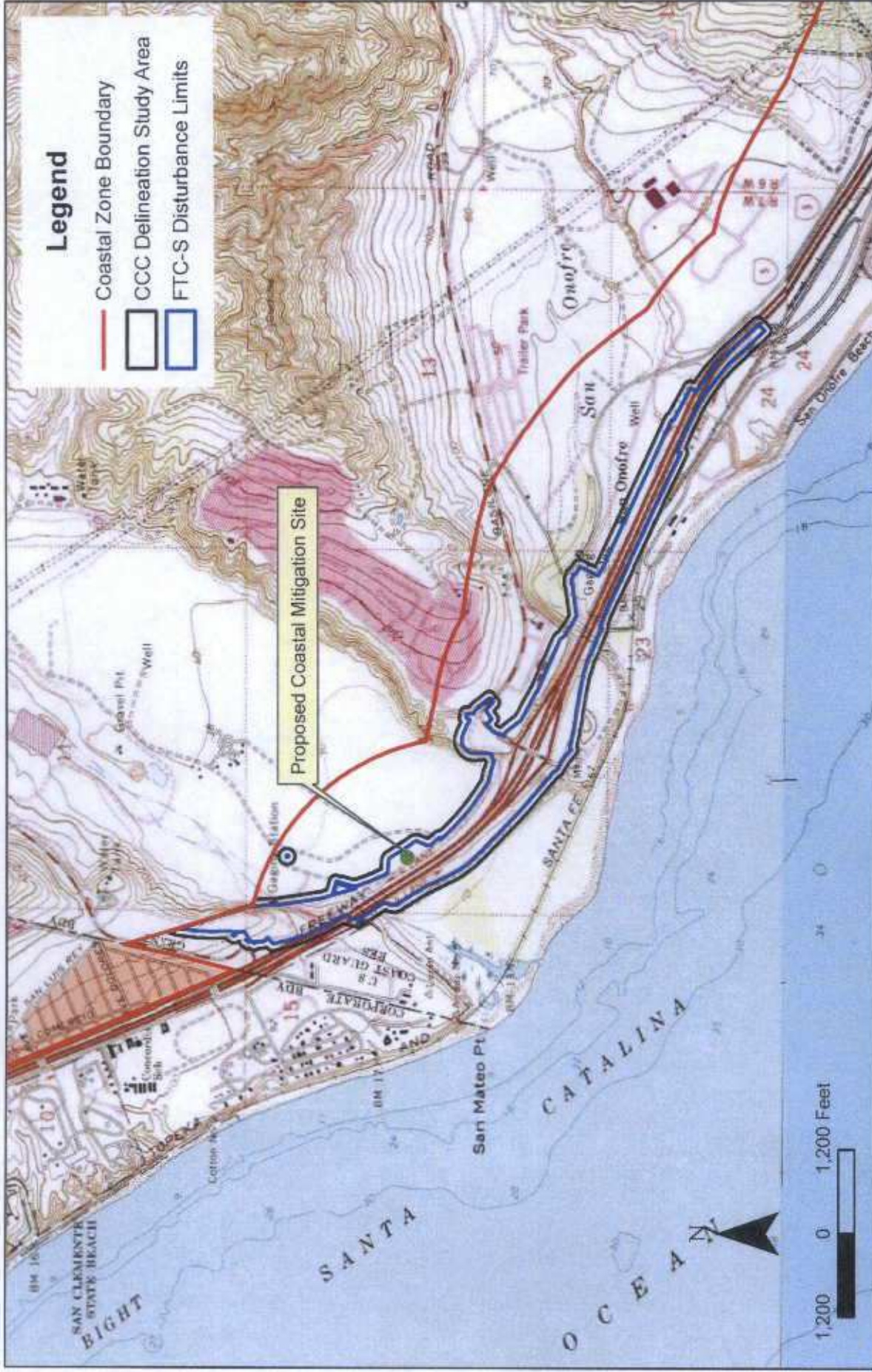


GLENN LUKOS ASSOCIATES

EXHIBIT 2

CCC PORTION OF FTC-S

Vicinity Map



GLENN LUKOS ASSOCIATES

EXHIBIT 3

CCC PORTION OF FTC-S

Disturbance Footprint within Coastal Zone



Permanent Impacts to San Mateo Creek
from four bridge piers (~10'x7') total 0.006 acre.
Temporary impacts from bridge
construction total 5.75 acres

Permanent Impacts to San Mateo Marsh
from grading for Toby's Road realignment
Temporary impacts from Toby's Road realignment

Legend

- Coastal Zone Boundary
- Supplemental CCC Delineation Study Area
- Wetland Data Sheets
- FTCS Disturbance Limits
- Bridge Supports Within Coastal Wetland
- Bridge Supports Avoiding Coastal Wetland
- Temporary Impacts to CCC Wetland
- Permanent Impacts to CCC Wetland
- CCC Wetland - Vegetation Types**
- Vernal Pool
- Coastal Freshwater Marsh
- Mullet Scrub
- Southern Arroyo Willow Forest

SAN MATEO CREEK

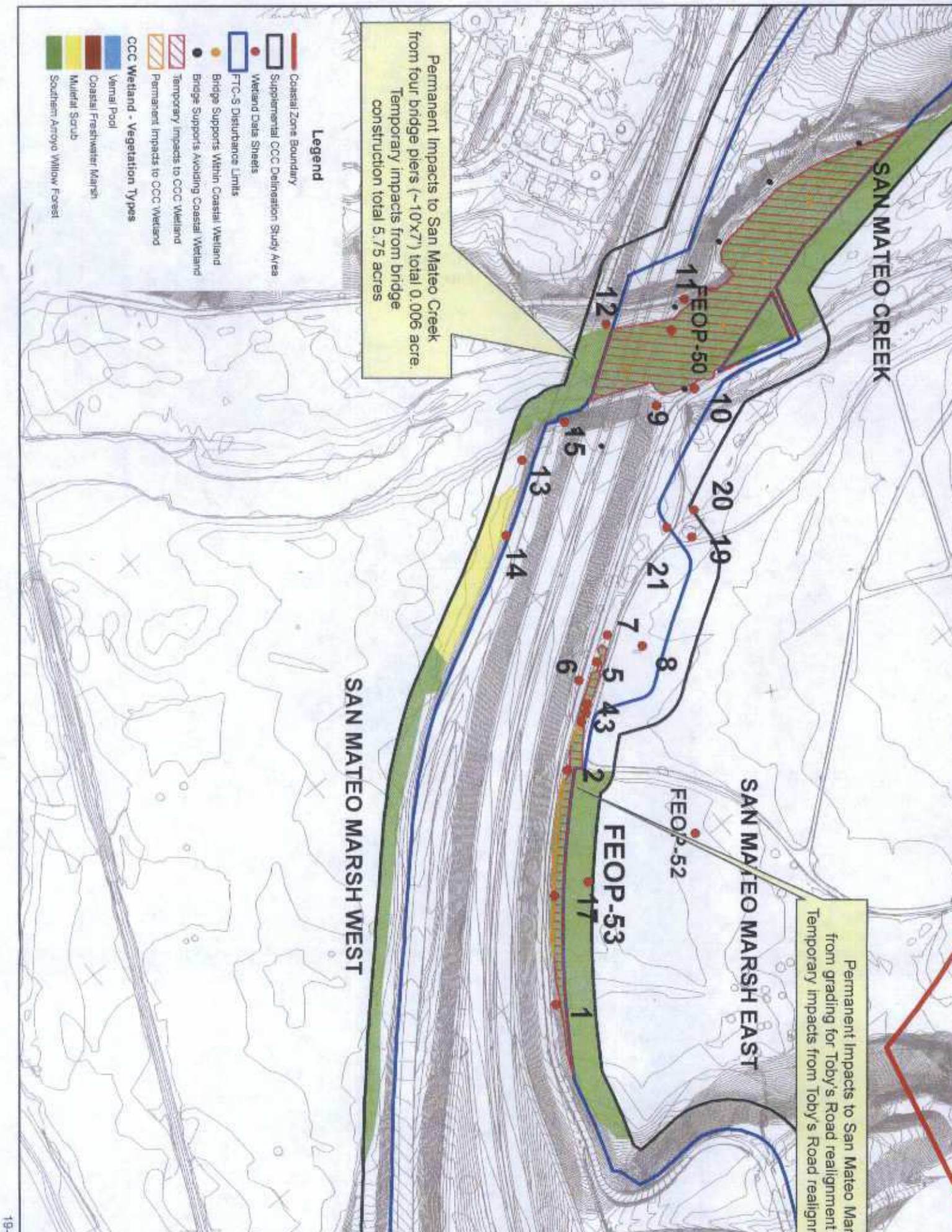
SAN MATEO MARSH EAST

SAN MATEO MARSH WEST

Permanent Impacts to San Mateo Creek
from four bridge piers (~10'x7') total 0.006 acre.
Temporary impacts from bridge
construction total 5.75 acres

Permanent Impacts to San Mateo Marsh
from grading for Toby's Road realignment
Temporary impacts from Toby's Road realign

- Legend**
- Coastal Zone Boundary
 - Supplemental CCC Delineation Study Area
 - Wetland Data Sheets
 - FTC-S Disturbance Limits
 - Bridge Supports Within Coastal Wetland
 - Bridge Supports Avoiding Coastal Wetland
 - Temporary Impacts to CCC Wetland
 - Permanent Impacts to CCC Wetland
 - CCC Wetland - Vegetation Types
 - Vernal Pool
 - Coastal Freshwater Marsh
 - Mudflat Scrub
 - Southern Arroyo Willow Forest





PHOTOGRAPH 1: Southeast Edge of San Mateo Creek looking northeast from footbridge. Note the distinct change in vegetation: Willows on left edge of photo are rooted at base of abutment.



PHOTOGRAPH 2: Southeast Edge of San Mateo Creek looking southwest from footbridge. Note the distinct change in vegetation: Willows in background are rooted at base of bank.



GLENN LUKOS ASSOCIATES

EXHIBIT 5

CCC PORTION OF FTC-S

Site Photographs



PHOTOGRAPH 3: Margin of San Mateo Marsh at Toby's road. Road is elevated several feet above marsh. Tree layer at margin dominated by arroyo willow, understory dominated by poison oak.



PHOTOGRAPH 4: Typical Mexican elderberry woodland



GLENN LUKOS ASSOCIATES

EXHIBIT 5

CCC PORTION OF FTC-S

Site Photographs



PHOTOGRAPH 5: Soils at San Onofre/I-5 Bridge. No wetland hydrology or hydric soils were detected.



GLENN LUKOS ASSOCIATES

EXHIBIT 5



PHOTOGRAPH 6: Additionally, note the distinct change in vegetation at the toe of the slope.

CCC PORTION OF FTC-S

Site Photographs

Proposed Vegetation (Creation)

- Disturbance Limits
- Southern Willow Woodland (1.0 acre)
- Approximate Location of Sand Filter
- Temporary Impact Areas To Be Revegetated with Willow Woodland
- Approximate Location of Re-aligned Toby's Road



0 200 400 800 Feet



Existing Vegetation: Neither State or Federal Waters

- Former Agricultural Fields (Active Military Training Area)
- Existing Dirt Road

CCC PORTION OF FTC-S

Coastal Mitigation Site

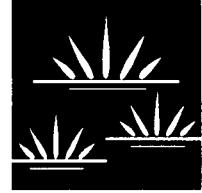
GLENN LUKOS ASSOCIATES

EXHIBIT 6



GLENN LUKOS ASSOCIATES

Regulatory Services



STATEMENT OF QUALIFICATIONS

Glenn Lukos Associates, Inc. (GLA) was formed in August 1989 specifically to assist developers and public agencies in the arid Southwest to process "wetland" permits. Glenn Lukos, founder of GLA, has worked in wetland regulation since 1979, only two years after the first wetland regulations were implemented by the U.S. Army Corps of Engineers (Corps). Mr. Lukos began his work with wetlands in the Regulatory Section of the New Orleans District of the Corps where for four years he specialized in the analysis of cumulative impacts of permitted dredge and fill activities. For four additional years he served as Chief of the South Coast Regulatory Section at the Los Angeles District of the Corps where he supervised the group of people processing permits for Orange, San Diego, Riverside, San Bernardino, and Imperial counties, Arizona and parts of Utah. After eight years with the Corps, Mr. Lukos has been working for 20 years as a wetland permitting consultant.

GLA currently has a staff of 24 professionals and four administrative assistants. While we have grown in numbers over the past few years, we are still a small company. Nevertheless, we have the largest number of staff of any firm in California (and perhaps the country) dedicated to "wetlands" permitting and performance of biological surveys to support ESA processing, due diligence, and CEQA and NEPA compliance.

Historically, our area of work extends from the Mexican border on the south; Elko, Nevada on the north; Arizona on the east; and the Republic of Palau on the west. The majority of our work is within Southern California in the counties of Los Angeles, Ventura, Orange, San Bernardino, Riverside, and San Diego. Approximately 60 percent of our work is directly related to wetlands and other jurisdictional waters within California, the rest is related to general and focused biological surveys and endangered species issues. We have worked on projects as small as 1 acre in size to projects over 25,000 acres in size.

Our work ultimately involves coordinating with or processing authorizations from the Corps pursuant to Section 404 of the Clean Water Act, California Department of Fish and Game (CDFG) pursuant to Section 1600 of the California Fish and Game Code, various Regional Water Quality Control Boards pursuant to Section 401 of the Clean Water Act and the Porter-Cologne Act, and California Coastal Commission pursuant to the California Coastal Act. Processing of the various authorizations can also require coordination with U.S. Fish and Wildlife Service (USFWS) pursuant to the Fish and Wildlife Coordination Act and Section 7 of the Endangered Species Act, U.S. Environmental Protection Agency (USEPA) pursuant to Section 404(q) of the Clean Water Act, and the State Historic Preservation Officer pursuant to Section 106 of the Historic Preservation

29 Orchard
Telephone: (949) 837-0404

■ Lake Forest

■ California 92630-8300
Facsimile: (949) 837-5834

Act. As noted, GLA's on-staff biologists conduct all types of biological surveys necessary to support CEQA and NEPA compliance and to determine MSHCP consistency.

In the processing of wetland authorizations for a given site we typically (1) delineate the boundaries of wetlands and other jurisdictional waters, (2) assist the planner in avoiding and/or minimizing impacts to these jurisdictional waters, (3) work with the planner in devising a permitting strategy that best suits the needs of the project, (4) design conceptual mitigation or habitat restoration plans, (5) prepare notification and applications to the appropriate regulatory agencies, (6) submit and process the notifications and applications, (7) coordinate with the regulatory and advisory agencies throughout the permitting process, and (8) assist in the implementation of the mitigation and monitor the success of the mitigation.

In arid areas, such as Southern California, wetlands and other jurisdictional waters are considerably different than those found in other areas of the country. Therefore, identifying these jurisdictional waters, mitigating for their loss, and processing permits for work within these waters requires special skills and experience that large environmental firms with out-of-state experts cannot fully appreciate. GLA is unique in Southern California in that we are the only firm that specializes in "wetland"-related projects. As a result, we are recognized experts in the processing of "wetland" permits in Southern California.

GLA, and its staff, have the longest history of working on "wetland"-related projects of any other firm in Southern California. Since its inception in late 1989, GLA has worked on over 1,000 wetland projects. GLA's founder, Glenn Lukos, has worked in the field of "wetland" regulation since 1979, only two years after wetlands first became regulated by the Corps. Similarly GLA biologist have extensive experience in all major habitat types in southern California having conducted surveys for many large projects in Orange, San Diego, Riverside, Ventura and Los Angeles counties.

GLENN C. LUKOS

Principal-in-Charge

Mr. Lukos is an environmental regulations specialist with advanced training in the aquatic sciences and additional formal training in remote sensing of wetlands and delineation of wetlands. He is responsible for supervision of all jurisdictional delineations and processing of Section 404, Section 10, and Section 103 permits, and CDFG 1602 agreements. Prior to his entry into environmental consulting in 1987, Mr. Lukos served as a regulatory specialist for the U.S. Army Corps of Engineers (New Orleans and Los Angeles Districts, and South Pacific Division), where his primary focus was on federal environmental laws and regulations, gaining extensive working knowledge in those regulations associated with Section 404 of the Clean Water Act; Section 10 of the River and Harbor Act; Section 103 of the Marine Protection, Research, and Sanctuaries Act; the Endangered Species Act; and the National Environmental Policy Act. During the last four of these years, he managed the Corps regulatory program in the Los Angeles District, South Coast Section, a geographic jurisdiction including Southern California, Arizona, and parts of Nevada and Utah. He has been instrumental in interpreting regulations and formulating policy for the Corps at both the district and division levels.

Professional Experience

Coordinated numerous environmentally and politically sensitive permit applications with federal, state and local agencies, and environmental groups, including the Corps, USFWS, USEPA, CDFG, California Resources Agency, California Regional Water Quality Control Boards, Arizona Game and Fish Department, and Sierra Club.

Managed the processing of over 1,000 permit applications through the Corps, CDFG, and the California Coastal Commission.

Supervised a Corps interdisciplinary team of environmental professionals in the preparation of environmental documents (including several EISs and over 500 Environmental Assessments), delineation of wetlands, and evaluation of mitigation proposals.

Managed the Corps Regulatory Program in the South Coast Section of the Los Angeles District; the geographic area of responsibility consisted of Southern California, the entire state of Arizona, and parts of Nevada and Utah. Was regulatory specialist in coastal Louisiana for the New Orleans District Corps of Engineers.

Supervised and participated in numerous Section 7 Consultations and preparation of several Biological Assessments pursuant to the Endangered Species Act.

GLENN C. LUKOS [cont.]

Professional History

Glenn Lukos Associates, Inc., President
Michael Brandman Associates, Director of Regulatory Services
U.S. Army Corps of Engineers, Los Angeles District, Chief of South Coast Section,
Regulatory Branch
U.S. Army Corps of Engineers, South Pacific Division, Acting Chief of Regulatory Unit
U.S. Army Corps of Engineers, New Orleans District, Environmental Resources Specialist

Education

Ph.D. (partially completed), Aquatic Ecology, University of South Florida
M.S. Limnology and Aquatic Biology, State University of New York
B.S. Interdisciplinary Sciences, State University of New York

Additional Training

Wetland Delineation Refresher Course, Wetland Training Institute, 1994
Seminar on Wetland Permitting, University of California Cooperative Extension, 1992
General Construction Stormwater Permit Compliance Course, American Public Works
Association, 1992
Environmental Laws and Regulations Course, U.S. Army Corps of Engineers, 1984
Regulatory Compliance and Enforcement Course, U.S. Army Corps of Engineers, 1983
Wetlands Soils and Hydrology Course, U.S. Army Corps of Engineers, 1983
Map Overlay Statistical System Course, U.S. Fish and Wildlife Service, 1981
Wetlands Analytical Mapping System Course, U.S. Fish and Wildlife Service, 1981
Remote Sensing--Advanced Digital Image Processing and Analysis, U.S. Army Corps of
Engineers and Purdue University, 1981
Remote Sensing Applications Training Course, 1980

Professional Affiliations

Society of Wetland Scientists
Association of State Wetland Managers
Society for Ecological Restoration
California Native Plant Society
Building Industry Association
Water Environment Federation

INGRID CHLUP

Regulatory Specialist

Ms. Chlup is a regulatory specialist with field experience in a variety of Southern California plant communities. She has assisted in a variety of wetland delineations, functional assessments and permitting projects throughout Southern California. Ms. Chlup has also assisted with the development and implementation a storm filter media and monitoring plan and monitored permit compliance.

Professional Experience

Served as task manager for wetland delineations of a 6,000-acre study area associated with Ritter Ranch in Palmdale, a 500-acre Bundy Canyon Road Improvement Project in Riverside County, a 3,000-acre study area associated with Aera Master Planned Community in Orange and Los Angeles Counties, a 9,000-acre Rancho Mission Viejo Property in southern Orange County, and a 12,000-acre Centennial Project in Los Angeles County. Duties included direction of the wetland delineation team in performance of wetland delineation and performance of wetland delineation.

Conducted jurisdictional delineation and HGM functional assessment for Foothill Transportation Corridor, Aera Master Planned Community, East Orange Master Planned Community and Rancho Mission Viejo in Orange County, Montebello Fields and Centennial Ranch in Los Angeles County and San Jacinto River and Aquabella in Riverside County including the preparation of delineation reports and digital analysis of jurisdictional totals,

Prepared permit applications, permit modifications and permit amendments pursuant to Section 404 of the Clean Water Act and Section 1601/1603 of the California Fish and Game Code. Assisted with preparation of Water Quality Certification applications pursuant to Section 401 of the Clean Water Act,

Assisted with development of the Wetland Mitigation Plan for Greer Ranch. Prepared the Sage Scrub Mitigation Plans for Norco Ridge Ranch, Nutmeg Road Extension associated with Greer Ranch, and BayView Apartments in Newport Beach. Prepared landscaping guidelines to prevent the introduction of exotic species. Prepared the Wetland/Riparian Mitigation Plan for East Orange Planned Community and implemented the Wetland Mitigation Plan for Talega Master Planned Community,

Developed Educational and Residential Awareness Program for Nutmeg Road Extension associated with Greer Ranch, Storm Filter Media and Monitoring Plan for Norco Ridge Ranch and Integrated Pest Management Plan for Bayview Senior Apartments

Served as task manager for construction monitoring associated with Norco Ridge Ranch in Riverside County and Talega Master Planned Community, Arroyo Trabuco Golf Course and

Tonner Hills in Orange County including the preparation of daily, weekly, monthly, quarterly and annual reports and verifying permit compliance in the field,

Professional History

Glenn Lukos Associates, Inc., Regulatory Specialist
Irvine Unified School District

Education

M.S. Environmental Studies, California State University, Fullerton
B.A. Biology with concentration in ecology and environmental science, University of California, Irvine

Professional Training

Storm Water Compliance, Management and Inspection (SWPPP) Training 2001
Wetland Delineation Training (WTI) 2002
GPS Mapping for GIS with TerraSync and GeoExplorer CE Series, Allen Instruments, 2004

Professional Affiliations

The Wildlife Society
The Society of Wetland Scientists

Presentations

Southern California Academy of Science May 10, 2003
Wildlife Society February 28, 2003

THIENAN LY

Regulatory Specialist

Ms. Ly is a regulatory specialist and environmental scientist with experience in environmental planning, project management, regulatory permitting, and mitigation design. She has participated in numerous wetland delineations, prepared several mitigation plans, assisted in the preparation of several California Environmental Quality Act (CEQA) documents, and has successfully acquired environmental permits on numerous projects throughout southern California. Ms. Ly also holds a Master's degree in Environmental Science with an emphasis in regulatory policy and planning.

Selected Professional Experience

Served as Project Manager and conducted a jurisdictional wetland delineation of the 2,000-acre Oak Valley Development in Riverside County pursuant to Section 404 of the Clean Water Act and Section 1600 of the California Department of Fish and Game Code. Prepared permit application packages as well as mitigation and monitoring plan, and coordinated approval with the necessary agencies.

Served as Project Manager and prepared Section 404, 401, 1600 and Coastal Development Permit application packages for the Terranea Resort Project in Los Angeles County. Prepared permit application packages as well as mitigation and monitoring plan, and coordinated approval with the necessary agencies, including the Santa Monica Mountains Conservancy.

Served as Project Manager and prepared Section 404, 401, and 1600 application packages for the Deerlake Ranch Development in Los Angeles County. Tasks included verifying delineation and conducting least Bell's vireo surveys during Spring 2003. Coordinated with regulatory agencies and sought approval for donation of mitigation parcel to Santa Monica Mountains Conservancy.

Served as Project Manager and prepared Section 404, 401, and 1600 application packages for Monte Sereno Development in Riverside County. Tasks included verifying delineation and conducting nesting bird surveys in both upland and riparian habitats. Coordinated with regulatory agencies and sought approval for donation of preserved habitat to Coachella Valley Mountains Conservancy.

Served as Project Manager conducted a jurisdictional wetland delineation of the 129-acre Simi Valley Town Center Development in Los Angeles County pursuant to Section 404 of the Clean Water Act and Section 1600 of the California Department of Fish and Game Code. Prepared an extensive "alternatives analysis", which sought to identify the least environmentally damaging practicable alternative. Tasks included verifying delineation and conducting nesting bird surveys in both upland and riparian habitats. Coordinated with regulatory agencies and sought approval from U.S. Fish and Wildlife Service that proposed critical habitat for the coastal California gnatcatcher would not be adversely modified by proposed development.

Served as Project Manager and conducted a jurisdictional delineation of the 550-acre Spring Canyon Development in Los Angeles County pursuant to Section 404 of the Clean Water Act and Section 1600 of the California Department of Fish and Game Code. Project required comparison and reevaluation of delineation performed by previous landowner. Tasks included verifying delineation and evaluating wildlife corridor underpassing.

Assisted in quarterly and annual monitoring of various mitigation sites in southern California using transect method.

Assisted in the preparation of CEQA documents for the Santa Margarita Water District and the Santa Ynez Band of Chumash Indians for projects within southern California.

Professional History

Glenn Lukos Associates, Inc., Regulatory Specialist
Select Portfolio Management, Inc., Registered Representative

Education

M.S. Environmental Studies, California State University, Fullerton
B.A. Environmental Analysis & Design, University of California, Irvine

Publications

T. Ly. 2005. Violation of Section 1602 of the Fish and Game Code at Tucker Wildlife Sanctuary. California State University, Fullerton.

Professional Training

Wetland Delineation Training (WTI)

TONY BOMKAMP

Senior Biologist/Wetland Specialist

Mr. Bomkamp is a field biologist, wetlands ecologist, and regulatory specialist with an extensive background in environmental studies. As a botanist, Mr. Bomkamp has diverse field experience extending back over 30 years in all of the major vegetation communities in Southern California. He is a recognized expert in the Southern California flora and is past President of the Orange County Chapter of the California Native Plant Society (CNPS). Mr. Bomkamp has particular expertise in wetland and riparian ecology, having been the primary field investigator on a two-year study of all riparian and coastal wetlands in Los Angeles and Ventura counties for the Los Angeles Regional Water Quality Control Board. He has also performed and supervised numerous wetland delineations throughout California including the Coastal Zone in a variety of wetland habitats as well as providing technical assistance needed to obtain Coastal Development Permits. Mr. Bomkamp also serves as part-time faculty at California State University, Fullerton, for the graduate Environmental Studies Program, teaching courses on wetlands, and endangered habitats.

Professional Experience

As Senior Biologist and Regulatory Specialist has conducted wetland delineations and wetland functional assessments for numerous projects in southern California such as the 6,335 acre East Orange Planned Community in Orange County, 4,000 acre Ladera Ranch project in south Orange County. For Ladera Ranch, designed, implemented and monitored approximately 42 acres of wetland and riparian habitat through five-year monitoring program, including full buyoff by Corps and CDFG.

Conducted wetland delineation in support of Section 404, 401 and 1600 Authorizations and for a Coastal Development Permit for 250-acre Marblehead Coastal Project in San Clemente. Other tasks included full suite of biological surveys, design of and preparation of Habitat Mitigation and Monitoring Plan, construction monitoring and ongoing permit compliance during construction and implementation of habitat restoration.

Conducted wetland delineations and biological surveys for numerous projects within the Coastal Zone of Southern and Northern California including Newport Banning Ranch in Newport Beach, Pacific Gateway/Boeing in Seal Beach, Hellman Ranch in Seal Beach, Bayview Park in Newport Beach, a proposed Home Depot site in Long Beach, the 160-acre Waddell Property in Half Moon Bay, Hyatt Regency in Newport Beach, and Parkside Estates in Huntington Beach.

Conducted jurisdictional delineation for approximately 8,000 acres of 23,000-acre SAMP study area associated with Rancho Mission Viejo "Ranch Plan" study area in south Orange County. Duties included field delineation, verification visits with Corps and CDFG, preparation of Functional Assessment relative to giant reed eradication in San Juan and Trabuco Creeks and preparation of Permit packages for Corps, CDFG and RWQCB.

TONY BOMKAMP [cont.]

Performed wetland delineations, impact assessments, and/or permit processing for numerous project including: Newport Beach groundwater development pipeline in Newport Beach; Las Flores Ranch, an 8,000-acre community in Hesperia; Palos Verdes Golf Club; Glenfed Parcel H site in San Juan Capistrano; Brea Creek, Buena Park; Bull Creek Flood Control Channel at the Joseph Jensen Filtration Plant; Arroyo Trabuco Creek in Rancho Santa Margarita; and La Sierra College, Riverside.

Conducted vernal pool wetland delineation at Mystery Mesa, Los Angeles County, Fairview Park in Costa Mesa, and Otay Mesa in San Diego County.

Conducted protocol surveys for San Diego fairy shrimp (*Branchinecta sandiegoensis*), Riverside fairy shrimp (*Streptocephalus woottonii*), and vernal pool fairy shrimp (*Branchinecta lindali*) within the 10,000-acre study area associated with the Foothill Transportation Corridor in southern Orange County, the 5,000-acre Ladera Planned Community study area in southern Orange County, eight vernal pools at Fairview Park, Costa Mesa in central Orange County, nine vernal pool basins at University Research Park, Irvine.

Conducted protocol surveys for least Bell's vireo and other special-status riparian birds on numerous sites throughout southern California including Mill Creek in Chino, the Santa Ana River in Riverside and Orange Counties, Santiago Creek and Peter's Canyon Reservoir in East Orange, San Diego Creek and Santa Ana River mouth in Central Orange County, San Juan and Trabuco Creeks in south Orange County, San Mateo Creek in northern San Diego County, Pacoima Wash and Basin and La Tuna Canyon Creek in Los Angeles County, and a variety of smaller drainages in Orange, Riverside, San Bernardino, San Diego and Los Angeles Counties.

Performed numerous focused surveys for sensitive and endangered plant species, including (but not limited to) Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), a new species of nolina (*Nolina cismontana*), Braunton's milk vetch (*Astragalus brauntonii*), Orcutt's spineflower (*Chorizanthe orcuttiana*), Otay Mesa mint (*Pogogyne nudiscula*), southern tarweed (*Hemizonia parryi* ssp. *australis*), big-leaved crown beard (*Verbesina dissita*), San Diego button celery (*Eryngium aristulatum* ssp. *parishii*), Orcutt's grass (*Orcuttia californica*), spreading navarretia (*Navarretia fossalis*), prostrate navarretia (*Navarretia prostrata*), Conejo buckwheat (*Eriogonum crocatum*) and Blochman's dudleya (*Dudleya blochmaniae*).

Education

- M.S. Environmental Studies, California State University, Fullerton.
- B.A. Biology, California State University, Fullerton.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Sactip City/County: Sanford, SD, county Sampling Date: 7/24/07
 Applicant/Owner: TCA State: CA Sampling Point: CCC-1
 Investigator(s): J. Chup, J. Ly Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): road bed Local relief (concave, convex, none): Slope Slope (%): 2%
 Subregion (LRR): C Lat: 117°35' 0.99 Long: 33°23' 14.235 Datum: NAD 83
 Soil Map Unit Name: Tidal Flats NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.) Dry year
 Are Vegetation ☐ Soil ☐ or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks:			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Garry willow - Salix lasiolepis</u>	<u>100%</u>		<u>D</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				
Total Cover: <u>100%</u>				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species <u>100</u> x 2 = <u>200</u>
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species <u>.5</u> x 4 = <u>2</u>
Total Cover: _____				UPL species <u>63</u> x 5 = <u>315</u>
				Column Totals: <u>163.5</u> (A) <u>317</u> (B)
				Prevalence Index = B/A = <u>3.2</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>foxglove - Digitalis purpurea</u>	<u>60%</u>	<u>upl</u>	<u>D</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>castor bean - Ricinus communis</u>	<u>0.5</u>	<u>FACU</u>		<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. <u>blackberry - Rubus idaeus</u>	<u>1</u>	<u>upl</u>		<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. <u>Antennaria californica</u>	<u>1</u>	<u>upl</u>		<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. <u>brassica nigra</u>	<u>1</u>	<u>upl</u>		
6. _____				
7. _____				
8. _____				
Total Cover: <u>62.5</u>				¹ Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum				Hydrophytic Vegetation Present?
1. _____				Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>37%</u>	% Cover of Biotic Crust _____			
Remarks:				

SOIL

Sampling Point: CCC-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 4/2		none				fine loamy sand	
6-12	2.5Y 4/2		none				coarse loamy sand	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5) (LRR C)
☐ 1 cm Muck (A9) (LRR D)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Vernal Pools (F9)

- ☐ 1 cm Muck (A9) (LRR C)
☐ 2 cm Muck (A10) (LRR B)
☐ Reduced Vertic (F18)
☐ Red Parent Material (TF2)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

 Type: none
 Depth (inches): _____
Hydric Soil Present? Yes _____ No X

Remarks:

none present

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1) (Nonriverine)
☐ Sediment Deposits (B2) (Nonriverine)
☐ Drift Deposits (B3) (Nonriverine)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
☐ Biotic Crust (B12)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Other (Explain in Remarks)

- ☐ Water Marks (B1) (Riverine)
☐ Sediment Deposits (B2) (Riverine)
☐ Drift Deposits (B3) (Riverine)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____
 Water Table Present? Yes _____ No ✓ Depth (inches): _____
 Saturation Present? Yes _____ No ✓ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Mar 67, Jan 70, Jan 75, Apr 77

Feb 28, 1932, Jan 3, 1941, Sept 26, 1947, Feb 21, 1958, 6/25/01, 7/18 2006, 9/2006 Jan 87, Jan 95

Remarks:

none present, some evidence of water marks visible
seen on 7/18/01, 7/18/06, 9/2006, Jan 87, Jan 95

SCANNED

19-95004
Notes/Drawings

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Socchip City/County: Camp Pendleton, SD Sampling Date: 7/24/07 + 11/5/07
 Applicant/Owner: TCA State: CA Sampling Point: CCC-2
 Investigator(s): Ingrid Chiv, Thurman Ly Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): roadbed Local relief (concave, convex, none): slope Slope (%): 3%
 Subregion (LRR): C Lat: 117°35'13.1079 Long: 33°23'18.827 Datum: NAD83
 Soil Map Unit Name: tujiunga sand, 0-5% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? N Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Dry year</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Sambucus mexicana</u>	<u>100%</u>	<u>D</u>	<u>fac</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				Prevalence Index worksheet:
Sapling/Shrub Stratum				Total % Cover of: _____ Multiply by: _____
1. <u>to</u>	_____	_____	_____	OBL species x 1 = _____
2. _____	_____	_____	_____	FACW species x 2 = _____
3. _____	_____	_____	_____	FAC species <u>100</u> x 3 = <u>300</u>
4. _____	_____	_____	_____	FACU species x 4 = _____
5. _____	_____	_____	_____	UPL species <u>80</u> x 5 = <u>400</u>
Total Cover: _____				Column Totals: <u>180</u> (A) <u>700</u> (B)
Herb Stratum				Prevalence Index = B/A = <u>3.9</u>
1. <u>taxodium diversilobum</u>	<u>80%</u>	<u>D</u>	<u>upl</u>	Hydrophytic Vegetation Indicators:
2. _____	_____	_____	_____	<u>N</u> Dominance Test is >50%
3. _____	_____	_____	_____	<u>N</u> Prevalence Index is ≤3.0 ¹
4. _____	_____	_____	_____	<u>N</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
5. _____	_____	_____	_____	<u>N</u> Problematic Hydrophytic Vegetation ¹ (Explain)
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: _____				¹ Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>20%</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

SOIL

11/5/07 ICITL, TK

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2								rain matter
2-6	10YR 4/2		none					Sandy clay
6-16	10YR 3/2		none					Sandy clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- | | |
|--|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | |

Indicators for Problematic Hydric Soils³:

- | |
|---|
| <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Other (Explain in Remarks) |

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

 Type: _____ None
 Depth (inches): _____
Hydric Soil Present? Yes _____ No X

Remarks:

None present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (2 or more required)

- | |
|--|
| <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

 Surface Water Present? Yes _____ No ✓ Depth (inches): _____
 Water Table Present? Yes _____ No ✓ Depth (inches): _____
 Saturation Present? Yes _____ No ✓ Depth (inches): _____
 (includes capillary fringe)
Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Feb 32, Jan 41, Feb 59, Mar 67, Jan 70, Jan 75, Apr 77, Jan 87, Jan 95, Apr 06 Aerial

Remarks:

on slope, elevated ~6' above elevation at which shallow ground water has been detected in past

No inundation visible

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Sactip City/County: Camp Pendleton, CA SD Sampling Date: 7/24/07 149/07
 Applicant/Owner: TCA State: CA Sampling Point: CCC-3
 Investigator(s): Imelda Chlop, Mendenhall Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): ag ditch Local relief (concave, convex, none): concave Slope (%): 1%
 Subregion (LRR): C Lat: 33°35'14.992 Long: 117°23'21.036 Datum: NAD83
 Soil Map Unit Name: Tupunga sand, 0-5% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? ☒ Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? ☒ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ☐ No ☒
 Hydric Soil Present? Yes ☐ No ☒
 Wetland Hydrology Present? Yes ☐ No ☒

Is the Sampled Area
within a Wetland?

Yes ☐ No ☒

Remarks:

Dry year

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Sarcocaulis</u>	<u>80%</u>	<u>D</u>	<u>bcw</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. <u>elderberry-Sambucus mexicana</u>	<u>20%</u>	<u>N</u>	<u>fac</u>	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species <u>80</u> x 2 = <u>160</u>
4. _____				FAC species <u>20</u> x 3 = <u>60</u>
5. _____				FACU species _____ x 4 = _____
Total Cover: _____				UPL species <u>66</u> x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Toridendron diversifolium</u>	<u>60%</u>	<u>D</u>	<u>up1</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. _____				<input type="checkbox"/> Prevalence Index is ≤3.0 ¹
3. _____				<input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
Woody Vine Stratum				
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>40%</u>	% Cover of Biotic Crust _____			
Remarks:				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

SOIL 11/5/02 TC/TR/TV

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-2								organic
2-4	10YR3/2		none					clay muskods
4-16	10YR3/2		none					sandy clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- ☐ Histosol (A1) ☐ Sandy Redox (S5)
☐ Histic Epipedon (A2) ☐ Stripped Matrix (S6)
☐ Black Histic (A3) ☐ Loamy Mucky Mineral (F1)
☐ Hydrogen Sulfide (A4) ☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5) (LRR C) ☐ Depleted Matrix (F3)
☐ 1 cm Muck (A9) (LRR D) ☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11) ☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12) ☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1) ☐ Vernal Pools (F9)
☐ Sandy Gleyed Matrix (S4)

- ☐ 1 cm Muck (A9) (LRR C)
☐ 2 cm Muck (A10) (LRR B)
☐ Reduced Vertic (F18)
☐ Red Parent Material (TF2)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

 Type: _____
 Depth (inches): _____ None
Hydric Soil Present? Yes _____ No ☒

Remarks:

None present

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1) ☐ Salt Crust (B11)
☐ High Water Table (A2) ☐ Biotic Crust (B12)
☐ Saturation (A3) ☐ Aquatic Invertebrates (B13)
☐ Water Marks (B1) (Nonriverine) ☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2) (Nonriverine) ☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Drift Deposits (B3) (Nonriverine) ☐ Presence of Reduced Iron (C4)
☐ Surface Soil Cracks (B6) ☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Explain in Remarks)
☐ Water-Stained Leaves (B9)

- ☐ Water Marks (B1) (Riverine)
☐ Sediment Deposits (B2) (Riverine)
☐ Drift Deposits (B3) (Riverine)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____
 Water Table Present? Yes _____ No ☒ Depth (inches): _____
 Saturation Present? Yes _____ No ☒ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 47, 58, 67, 70, 75, 77, 87, 95, 06 aerial

Remarks:

none visible

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Soc Tiip City/County: Camp Pendleton, San Diego Sampling Date: 7/24/07 4/8/07
 Applicant/Owner: TCA State: CA Sampling Point: CCG-4
 Investigator(s): Ingendavip, Trenan Ly Section, Township, Range: S14, T9S, R7N
 Landform (hillslope, terrace, etc.): bad bed Local relief (concave, convex, none): Slope Slope (%): 0.57
 Subregion (LRR): C Lat: 117°35'15.143 Long: 33°23'21.529 Datum: NAD83
 Soil Map Unit Name: Tu, ungu sand, D - 5% slopers NWI classification: NAVe
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? N Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u>	No <u> </u>	Is the Sampled Area within a Wetland?	Yes <u>X</u>	No <u> </u>
Hydric Soil Present?	Yes <u> </u>	No <u>X</u>			
Wetland Hydrology Present?	Yes <u> </u>	No <u>X</u>			
Remarks: <u>Dry year</u>					

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Sambucus mexicana</u>	<u>80</u>	<u>D</u>	<u>FAC</u>	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>100%</u> (A/B)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Prevalence Index worksheet:	
Total Cover: <u> </u>				Total % Cover of:	Multiply by:
Sapling/Shrub Stratum				OBL species	x 1 = <u> </u>
1. <u>boerhaavia salicifolia</u>	<u>20</u>	<u>D</u>	<u>FACW</u>	FACW species	x 2 = <u>40</u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species	x 3 = <u>240</u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species	x 4 = <u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	UPL species	x 5 = <u>10</u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Column Totals:	<u>102</u> (A) <u>296</u> (B)
Total Cover: <u> </u>				Prevalence Index = B/A = <u>2.8</u>	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <u>brassica nigra</u>	<u>1</u>	<u>N</u>	<u>UPL</u>	<u>Y</u> Dominance Test is >50%	
2. <u>horvus diandrus</u>	<u>1</u>	<u>N</u>	<u>UPL</u>	<u>Y</u> Prevalence Index is ≤3.0 ¹	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u>N</u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	¹ Indicators of hydric soil and wetland hydrology must be present.	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
Total Cover: <u> </u>					
Woody Vine Stratum					
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>		
Total Cover: <u> </u>					
% Bare Ground in Herb Stratum <u>98%</u> % Cover of Biotic Crust <u> </u>					
Remarks: <u> </u>					

SOIL

11/5/07 IC/TLTK

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2								Organic
2-4	10YR 7/2		none					Clay plus Roots
4-16	10YR 3/2		none					Sandy clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1) ☐ Sandy Redox (S5)
☐ Histic Epipedon (A2) ☐ Stripped Matrix (S6)
☐ Black Histic (A3) ☐ Loamy Mucky Mineral (F1)
☐ Hydrogen Sulfide (A4) ☐ Loamy Gleyed Matrix (F2)
☐ Stratified Layers (A5) (LRR C) ☐ Depleted Matrix (F3)
☐ 1 cm Muck (A9) (LRR D) ☐ Redox Dark Surface (F6)
☐ Depleted Below Dark Surface (A11) ☐ Depleted Dark Surface (F7)
☐ Thick Dark Surface (A12) ☐ Redox Depressions (F8)
☐ Sandy Mucky Mineral (S1) ☐ Vernal Pools (F9)
☐ Sandy Gleyed Matrix (S4)

Indicators for Problematic Hydric Soils³:

- ☐ 1 cm Muck (A9) (LRR C)
☐ 2 cm Muck (A10) (LRR B)
☐ Reduced Vertic (F18)
☐ Red Parent Material (TF2)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

 Type: _____
 Depth (inches): _____ hole
Hydric Soil Present? Yes _____ No ☒

Remarks:

none

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1) ☐ Salt Crust (B11)
☐ High Water Table (A2) ☐ Biotic Crust (B12)
☐ Saturation (A3) ☐ Aquatic Invertebrates (B13)
☐ Water Marks (B1) (Nonriverine) ☐ Hydrogen Sulfide Odor (C1)
☐ Sediment Deposits (B2) (Nonriverine) ☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Drift Deposits (B3) (Nonriverine) ☐ Presence of Reduced Iron (C4)
☐ Surface Soil Cracks (B6) ☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Inundation Visible on Aerial Imagery (B7) ☐ Other (Explain in Remarks)
☐ Water-Stained Leaves (B9)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
☐ Sediment Deposits (B2) (Riverine)
☐ Drift Deposits (B3) (Riverine)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____
 Water Table Present? Yes _____ No ☒ Depth (inches): _____
 Saturation Present? Yes _____ No ☒ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 58, 67, 70, 75, 77, 87, 95, 06 acres

Remarks:

none observed

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SOCTIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07
 Applicant/Owner: TCF State: CA Sampling Point: CCC-5
 Investigator(s): Imanachup, T. Mananay Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): ag ditch Local relief (concave, convex, none): none Slope (%): 0.57
 Subregion (LRR): C Lat: 117°35'14.59 Long: 33°23'22.807 Datum: NAD83
 Soil Map Unit Name: Tupunga sand, 0-5 to slopes NWI classification: NAme
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Yes No Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? Yes No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>No</u>	Is the Sampled Area within a Wetland?	Yes <u>No</u>
Hydric Soil Present?	Yes <u>No</u>		
Wetland Hydrology Present?	Yes <u>No</u>		
Remarks: <u>Dry year</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>0</u> (A/B)
4. _____					
Total Cover: _____					
Shrub/Strat				Prevalence Index worksheet:	
1. <u>Prosopis juliflora</u>	<u>70</u>	<u>D</u>	<u>upl</u>	Total % Cover of:	Multiply by:
2. <u>Prosopis juliflora</u>	<u>5</u>		<u>facw</u>	OBL species	<u>5</u> x 1 = <u>5</u>
3. <u>Prosopis juliflora</u>	<u>5</u>		<u>upl</u>	FACW species	<u>6</u> x 2 = <u>12</u>
4. _____				FAC species	<u>3</u> x 3 = <u>9</u>
5. _____				FACU species	<u>3</u> x 4 = <u>12</u>
Total Cover: <u>80</u>				UPL species	<u>90</u> x 5 = <u>450</u>
				Column Totals:	<u>94</u> (A) <u>440</u> (B)
				Prevalence Index = B/A = <u>4.6</u>	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <u>Prosopis juliflora</u>	<u>3</u>		<u>facu</u>	<u>Dominate Test is >50%</u>	
2. <u>Prosopis juliflora</u>	<u>3</u>		<u>fac</u>	<u>Prevalence Index is <3.0</u>	
3. <u>Prosopis juliflora</u>	<u>3</u>		<u>fac</u>	<u>Morphological Adaptations</u> (Provide supporting data in Remarks or on a separate sheet)	
4. <u>Prosopis juliflora</u>	<u>10</u>	<u>D</u>	<u>upl</u>	<u>Problematic Hydrophytic Vegetation</u> (Explain)	
5. _____					
6. _____					
7. _____					
8. _____					
Total Cover: <u>19</u>					
Woody Vine Stratum				Indicators of hydric soil and wetland hydrology must be present.	
1. _____				Hydrophytic Vegetation Present?	
2. _____				Yes <u>No</u>	
Total Cover: _____					
% Bare Ground in Herb Stratum <u>81</u> % Cover of Biotic Crust _____					
Remarks:					

Sampling Point:

5

[illegible]

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present.

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No

Remarks: None present

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | | |
|--|--|---|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes _____ No ~~X~~ Depth (inches): _____
 Water Table Present? Yes _____ No ~~X~~ Depth (inches): _____
 Saturation Present? Yes _____ No ~~X~~ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes No ☒ ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 47, 41, 67, 70, 75, 77, 87, 95, 06 años

Remarks: None visible

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SACTIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07
 Applicant/Owner: TCA State: CA Sampling Point: CCC-6
 Investigator(s): Ingrid Chlop Thienhan Ly Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): None Slope (%): 1%
 Subregion (LRR): C Lat: 117°35'14.514 Long: 33°23'21.785 Datum: NAD83
 Soil Map Unit Name: Tujunga sand, 0-5% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? ☒ Are "Normal Circumstances" present? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? ☒ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
Remarks: <u>Dry season</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Sambucus mexicana</u>	<u>80</u>	<u>D</u>	<u>fac</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u>	(A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u>	(B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u>	(A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
Total Cover: _____				Total % Cover of:	Multiply by:
Sapling/Shrub Stratum				OBL species _____	x 1 = _____
1. <u>Antennaria caroliniana</u>	<u>80</u>	<u>D</u>	<u>upl</u>	FACW species _____	x 2 = _____
2. _____	_____	_____	_____	FAC species <u>80</u>	x 3 = <u>240</u>
3. _____	_____	_____	_____	FACU species _____	x 4 = _____
4. _____	_____	_____	_____	UPL species <u>85</u>	x 5 = <u>425</u>
5. _____	_____	_____	_____	Column Totals: <u>165</u>	(A) <u>665</u> (B)
Total Cover: _____				Prevalence Index = B/A = <u>4.0</u>	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. <u>Lythrum diandrum</u>	<u>25</u>	<u>N</u>	<u>upl</u>	___ Dominance Test is >50%	
2. <u>Toxicodendron diversilobum</u>	<u>50</u>	<u>D</u>	<u>upl</u>	___ Prevalence Index is >3.0 ¹	
3. _____	_____	_____	_____	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)	
5. _____	_____	_____	_____	___ Indicators of hydric soil and wetland hydrology must be present.	
6. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
Total Cover: _____					
Woody Vine Stratum					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
Total Cover: _____					
% Bare Ground in Herb Stratum <u>25</u> % Cover of Biotic Crust _____					
Remarks:					

SOIL

11/5/07 TK/IC/TL

Sampling Point: 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹		
0-2	10YR 3/2						Gravel
2-6	10YR 4/3		none				fine silty clay
6-16	10YR 3/2		none				fine silty clay

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	
<input type="checkbox"/> Thick Dark Surface (A12)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	
<input type="checkbox"/> Sandy Redox (S5)	
<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Loamy Mucky Mineral (F1)	
<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Vernal Pools (F9)	

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____ None

Hydric Soil Present? Yes _____ No ☒

Remarks: none present

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____

Water Table Present? Yes _____ No ☒ Depth (inches): _____

Saturation Present? Yes _____ No ☒ Depth (inches): _____ (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 47, 67, 70, 75, 77, 87, 95, 06 aerial

Remarks: adjacent to Tubi Road, no suitable wetland hydrology present
located at base of hill slope for T-5

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SCTIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07 + 14/07
 Applicant/Owner: TCA State: SD Sampling Point: CCC-7
 Investigator(s): Imnachrup, Thernmly Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): ag field Local relief (concave, convex, none): flat Slope (%): 0.52
 Subregion (LRR): C Lat: 17°25'17.123 Long: 33°23'23.574 Datum: NAD83
 Soil Map Unit Name: Tujunga Sand, 0-5% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? ☒ Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? ☒ Yes ☐ No ☐ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <u>Dry yes</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)														
1. <u>Sambucus mexicana</u>	<u>10</u>	<u>D</u>	<u>FACW</u>															
2. _____																		
3. _____																		
4. _____																		
Total Cover: _____				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>x 1 = <u>40</u></td> </tr> <tr> <td>FACW species</td> <td>x 2 = <u>20</u></td> </tr> <tr> <td>FAC species</td> <td>x 3 = <u>30</u></td> </tr> <tr> <td>FACU species</td> <td>x 4 = <u>20</u></td> </tr> <tr> <td>UPL species</td> <td>x 5 = <u>525</u></td> </tr> <tr> <td>Column Totals:</td> <td><u>140</u> (A) <u>615</u> (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>4.4</u>	Total % Cover of:	Multiply by:	OBL species	x 1 = <u>40</u>	FACW species	x 2 = <u>20</u>	FAC species	x 3 = <u>30</u>	FACU species	x 4 = <u>20</u>	UPL species	x 5 = <u>525</u>	Column Totals:	<u>140</u> (A) <u>615</u> (B)
Total % Cover of:	Multiply by:																	
OBL species	x 1 = <u>40</u>																	
FACW species	x 2 = <u>20</u>																	
FAC species	x 3 = <u>30</u>																	
FACU species	x 4 = <u>20</u>																	
UPL species	x 5 = <u>525</u>																	
Column Totals:	<u>140</u> (A) <u>615</u> (B)																	
Sapling/Shrub Stratum 1. <u>haccharis salicifolia</u> <u>10</u> <u>D</u> <u>FACW</u> 2. <u>antennaria californica</u> <u>5</u> <u>N</u> <u>UPL</u> 3. <u>haccharis plumifera</u> <u>5</u> <u>N</u> <u>UPL</u> 4. <u>isocoma verticillata</u> <u>5</u> <u>N</u> <u>UPL</u> 5. <u>quercus bicolor</u> <u>10</u> <u>D</u> <u>UPL</u> Total Cover: <u>35</u>																		
Herb Stratum 1. <u>haccharis salicifolia</u> <u>40</u> <u>D</u> <u>UPL</u> 2. <u>haccharis salicifolia</u> <u>40</u> <u>D</u> <u>UPL</u> 3. <u>haccharis salicifolia</u> <u>10</u> <u>D</u> <u>UPL</u> 4. <u>haccharis salicifolia</u> <u>5</u> <u>N</u> <u>UPL</u> 5. <u>haccharis salicifolia</u> <u>5</u> <u>N</u> <u>UPL</u> 6. <u>haccharis salicifolia</u> <u>5</u> <u>N</u> <u>UPL</u> 7. _____ 8. _____ Total Cover: _____																		
Woody Vine Stratum 1. _____ 2. _____ Total Cover: _____																		
% Bare Ground in Herb Stratum <u>5%</u> Total Cover: _____ % Cover of Biotic Crust _____																		
Remarks: _____																		

SOIL 11/5/07 IC/HL/TK

Sampling Point: 7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present.

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____

Hydric Soil Present? Yes No ☒

Remarks: none visible

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes _____ No ~~X~~ Depth (inches): _____

Water Table Present? Yes _____ No ~~X~~ Depth (inches): _____

Saturation Present? Yes _____ No ~~X~~ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 47, 67, 70, 75, 77, 87, 95, 06 series

Remarks: None visible

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SACTIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07 + 11/6/07
 Applicant/Owner: TCA State: SD Sampling Point: 8
 Investigator(s): Ingrid Chinn, Thienan Ly Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): ag field Local relief (concave, convex, none): flat Slope (%): none
 Subregion (LRR): C Lat: 117°35'10.285 Long: 33°23'23.318 Datum: NAD83
 Soil Map Unit Name: Tujunga Sand, 0-5% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks: drier than avg)
 Are Vegetation , Soil X, or Hydrology significantly disturbed? AG Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? N (If needed, explain any answers in Remarks: invasive species)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	
Remarks:		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u> </u>				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	Total % Cover of: <u> </u> Multiply by: <u> </u>
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	OBL species <u> </u> x 1 = <u> </u>
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACW species <u> </u> x 2 = <u> </u>
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FAC species <u>10</u> x 3 = <u>30</u>
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	FACU species <u> </u> x 4 = <u> </u>
Total Cover: <u> </u>				UPL species <u>40</u> x 5 = <u>200</u>
Herb Stratum				Column Totals: <u>50</u> (A) <u>280</u> (B)
1. <u>Sisymbrium irio</u>	<u>20</u>	<u>0</u>	<u>upl</u>	Prevalence Index = B/A = <u>280 / 50 = 5.6</u>
2. <u>Avena fatua</u>	<u>5</u>	<u> </u>	<u>upl</u>	Hydrophytic Vegetation Indicators:
3. <u>Lolium rigidum</u>	<u>5</u>	<u> </u>	<u>upl</u>	<u> </u> Dominance Test is >50%
4. <u>Cyniza canadensis</u>	<u>10</u>	<u> </u>	<u>fac</u>	<u> </u> Prevalence Index is ≤3.0 ¹
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u> Problematic Hydrophytic Vegetation ¹ (Explain)
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	¹ Indicators of hydric soil and wetland hydrology must be present.
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>60</u>				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>
Woody Vine Stratum				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u> </u>				
% Bare Ground in Herb Stratum <u>40</u> % Cover of Biotic Crust <u> </u>				
Remarks:				

8

[illegible]

Remarks: non-present
historically discol + irrigated, currently used for Military training

None visible

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SUCTIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07 ^{11/5/07}
 Applicant/Owner: TCR State: _____ Sampling Point: CCC-9
 Investigator(s): Ingrid Chup, Therman Ly Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): Toe of alluvial fan Local relief (concave, convex, none): Slope Slope (%): 4%
 Subregion (LRR): C Lat: 117°35'22.988 Long: 33°23'29.899 Datum: NAD83
 Soil Map Unit Name: Tupunga Sand, 0-5% slopes NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes _____ No X
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No _____	Hydric Soil Present? Yes _____ No _____	Wetland Hydrology Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No _____
Remarks: <u>Dry year</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>7</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>43%</u> (A/B)
1. <u>Sambucus mexicana</u>	<u>60</u>	<u>D</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species <u>21</u> x 2 = <u>42</u> FAC species <u>50</u> x 3 = <u>150</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>24</u> x 5 = <u>120</u> Column Totals: <u>115</u> (A) <u>382</u> (B) Prevalence Index = B/A = <u>3.3</u>
Sapling/Shrub Stratum 1. <u>Quercus laevis</u> <u>10%</u> <u>D</u> <u>FACW</u> 2. <u>Artemisia tridentata</u> <u>5</u> <u>D</u> <u>UPL</u> 3. <u>Quercus emoryi</u> <u>5</u> <u>D</u> <u>UPL</u> 4. <u>Prosopis juliflora</u> <u>1</u> <u>D</u> <u>UPL</u> 5. <u>Heteromeles arbutifolia</u> <u>5</u> <u>D</u> <u>UPL</u> Total Cover: <u>26</u>				
Herb Stratum 1. <u>Polypogon monspeliensis</u> <u>10</u> <u>D</u> <u>FACW</u> 2. <u>Toxicodendron diversilobum</u> <u>5</u> <u>D</u> <u>UPL</u> 3. <u>Artemisia douglasiana</u> <u>1</u> <u>D</u> <u>FACW</u> 4. <u>Forsskuea virgata</u> <u>10</u> <u>D</u> <u>FACW</u> 5. <u>Heteromeles arbutifolia</u> <u>3</u> <u>D</u> <u>UPL</u> 6. <u>Gutierrezia serotina</u> <u>5</u> <u>D</u> <u>UPL</u> Total Cover: <u>34</u>				
Woody Vine Stratum 1. _____ 2. _____ Total Cover: _____				
% Bare Ground in Herb Stratum <u>66</u> % Cover of Biotic Crust _____				Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 ¹ _____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
Remarks: _____				

SOIL 11/5/02 JC/TK/L

Sampling Point: 9

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____
Depth (inches): None

Hydric Soil Present? Yes No ☒

Remarks: None present

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____

Water Table Present? Yes _____ No ☒ Depth (inches): _____

Saturation Present? Yes _____ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 47, 67, 70, 75, 77, 87, 95, 66 revised

Remarks: None present

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SACTIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07 ^{145/67}
 Applicant/Owner: TLA State: CA Sampling Point: CCC-10
 Investigator(s): Myndahlop, Thuyun W Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): terrace way to Sammler Local relief (concave, convex, none): flat Slope (%): 1.5%
 Subregion (LRR): C Lat: 117°35'22.454 Long: 33°23'31.049 Datum: NAD83
 Soil Map Unit Name: Tupunga sand, 0-5% slopes NWI classification: NA forest/shrubland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.)
 Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No
 Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u> No <u> </u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u> </u>
Hydric Soil Present?	Yes <u> </u> No <u> </u>	
Wetland Hydrology Present?	Yes <u> </u> No <u> </u>	
Remarks: <u>dry</u>		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u> </u>				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x 1 = <u> </u> FACW species <u>45</u> x 2 = <u>90</u> FAC species <u> </u> x 3 = <u> </u> FACU species <u>30</u> x 4 = <u>120</u> UPL species <u>25</u> x 5 = <u>125</u> Column Totals: <u>100</u> (A) <u>335</u> (B) Prevalence Index = B/A = <u>3.4</u>
Sapling/Shrub Stratum				
1. <u>baccharis pilularis</u>	<u>25</u>	<u> </u>	<u>UPL</u>	
2. <u>baccharis salicifolia</u>	<u>40</u>	<u>D</u>	<u>FACW</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>65</u>				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0' ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain)
Herb Stratum				
1. <u>ferula ovina</u>	<u>30</u>	<u>D</u>	<u>FACU</u>	
2. <u>guthriea douglasiana</u>	<u>5</u>	<u> </u>	<u>FACW</u>	
3. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
4. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
5. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
6. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
7. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
8. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u>35</u>				Hydrophytic Vegetation Present? Yes <u> </u> No <u> </u>
Woody Vine Stratum				
1. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
2. <u> </u>	<u> </u>	<u> </u>	<u> </u>	
Total Cover: <u> </u>				
% Bare Ground in Herb Stratum <u>65</u>	% Cover of Biotic Crust <u> </u>			
Remarks: <u> </u>				

10

[illegible]

W 8 m²

X

✓

No

Arid West – Version 11-1-2006

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SAGHP City/County: Campbellton, SD Sampling Date: 7/24/07
 Applicant/Owner: TEA State: CA Sampling Point: CCS-11
 Investigator(s): Ingrid Chupimann M Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): top of bank Local relief (concave, convex, none): none Slope (%): 17%
 Subregion (LRR): G Lat: 117°35'25.653 Long: 33°23'32.838 Datum: NAD83
 Soil Map Unit Name: Riverwash NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? ☒ Yes ☒ No ☐
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ naturally problematic? ☒ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <u>Dry Season</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Salix lasiolepis</u>	<u>85</u>	<u>0</u>	<u>few</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>baccharis pilularis</u>	<u>5</u>	<u>0</u>	<u>upl</u>	
2. <u>baccharis salicifolia</u>	<u>5</u>	<u>0</u>	<u>few</u>	OBL species <u>90</u> x 1 = <u>130</u>
3. <u>erigonum fasciculatum</u>	<u>1</u>	_____	<u>upl</u>	FACW species _____ x 2 = _____
4. <u>Antennaria californica</u>	<u>1</u>	_____	<u>upl</u>	FAC species _____ x 3 = _____
5. <u>Opuntia sp (cholla)</u>	<u>2</u>	_____	<u>upl</u>	FACU species _____ x 4 = _____
6. <u>Rhus ovata upl</u>	<u>15</u>	_____	<u>upl</u>	UPL species <u>65</u> x 5 = <u>325</u>
Total Cover: <u>55</u>				Column Totals: <u>155</u> (A) <u>505</u> (B)
Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index = B/A = <u>3.3</u>
1. <u>torilisandra dorenbachii</u>	<u>50</u>	<u>0</u>	<u>upl</u>	Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. <u>Amsinckia menziesii</u>	<u>5</u>	_____	<u>upl</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>55</u>				
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>45</u>	% Cover of Biotic Crust _____			
Remarks:				

Figure 1

Arid West – Version 11-1-2006

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SCTIIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07 ^{11/07}
 Applicant/Owner: FCA State: _____ Sampling Point: CC-12
 Investigator(s): Trond M. Thompson Section, Township, Range: S16, T9S, R7W
 Landform (hillslope, terrace, etc.): top of slope Local relief (concave, convex, none): none Slope (%): 270
 Subregion (LRR): C Lat: 117°35'39.302 Long: 33°23'24.213 Datum: NAD83
 Soil Map Unit Name: firewash NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: <u>Dry year</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. <u>Populus fremontii</u>	<u>100%</u>	<u>D</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u>	(A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u>	(B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u>	(A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:	
Total Cover: _____				Total % Cover of:	Multiply by:
Sapling/Shrub Stratum				OBL species _____	x 1 = _____
1. <u>Artemisia tridentata</u>	<u>60%</u>	<u>D</u>	<u>upl</u>	FACW species <u>100</u>	x 2 = <u>200</u>
2. _____	_____	_____	_____	FAC species _____	x 3 = _____
3. _____	_____	_____	_____	FACU species _____	x 4 = _____
4. _____	_____	_____	_____	UPL species <u>60</u>	x 5 = <u>300</u>
5. _____	_____	_____	_____	Column Totals: <u>160</u> (A)	<u>500</u> (B)
Total Cover: _____				Prevalence Index = B/A = <u>3.1</u>	
Herb Stratum				Hydrophytic Vegetation Indicators:	
1. _____	_____	_____	_____	___ Dominance Test is >50%	
2. _____	_____	_____	_____	___ Prevalence Index is ≤3.0 ¹	
3. _____	_____	_____	_____	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
4. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)	
5. _____	_____	_____	_____	___ Indicators of hydric soil and wetland hydrology must be present.	
6. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	
7. _____	_____	_____	_____		
8. _____	_____	_____	_____		
Total Cover: _____					
Woody Vine Stratum					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
Total Cover: _____					
% Bare Ground in Herb Stratum <u>105%</u> % Cover of Biotic Crust _____					
Remarks:					

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	2.5Y 3/3	100%	None					fine silt

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input checked="" type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____ None
Depth (inches): _____Hydric Soil Present? Yes _____ No ☒

Remarks:

None present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- | | |
|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | |

Secondary Indicators (2 or more required)

- | |
|--|
| <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Shallow Aquitard (D3) |
| <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>None detectable</u>	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): <u>None detectable</u>	
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 77, 67, 70, 75, 77, 87, 95, 06 aerial

Remarks:

flood stage to abutment

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SECTIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07^{4/5/07}
 Applicant/Owner: TVA State: _____ Sampling Point: CCC-13
 Investigator(s): Ingma Chup, Therman by Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): flat Slope (%): 2%
 Subregion (LRR): C Lat: 117°35'39.362 Long: 33°23'21.213 Datum: NAD83
 Soil Map Unit Name: Tupunga sand, 0-5% slopes NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>Dry year</u>		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>9</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u>Sambucus mexicana</u>	<u>25</u>	<u>D</u>	<u>FAC</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species <u>25</u> x 2 = <u>50</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>5</u> x 4 = <u>20</u> UPL species <u>50</u> x 5 = <u>250</u> Column Totals: <u>105</u> (A) <u>395</u> (B) Prevalence Index = B/A = <u>> 3</u>
Sapling/Shrub Stratum 1. <u>Baccharis salicifolia</u> <u>25</u> <u>D</u> <u>FACW</u> 2. <u>Artemisia californica</u> <u>15</u> <u>D</u> <u>UPL</u> 3. <u>Baccharis pilularis</u> <u>25</u> <u>D</u> <u>UPL</u> 4. _____ 5. _____ Total Cover: _____				
Herb Stratum 1. <u>Brassica nigra</u> <u>10</u> <u>D</u> <u>UPL</u> 2. <u>Trifolium vulgare</u> <u>5</u> <u>D</u> <u>FACU</u> 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ Total Cover: _____				
Woody Vine Stratum 1. _____ 2. _____ Total Cover: _____				
% Bare Ground in Herb Stratum <u>85</u> % Cover of Biotic Crust _____				
Remarks: <u>terrace adj to creek</u>				Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 ¹ _____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes _____ No _____

SOIL 11/5/07 IC/TL/T/K

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Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

[illegible]

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix.

²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (LRR C)
- ___ 1 cm Muck (A9) (LRR D)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)

- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

- ☐ 1 cm Muck (A9) (LRR C)
☐ 2 cm Muck (A10) (LRR B)
☒ Reduced Vertic (F18)
☐ Red Parent Material (TF2)
☐ Other (Explain in Remarks)

²Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type:

Depth (inches):

None

Hydric Soil Present?

Yes

Ne

Remarks:

none present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift Deposits (B3) (Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
☐ Biotic Crust (B12)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)
- ☐ Sediment Deposits (B2) (Riverine)
- ☐ Drift Deposits (B3) (Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?

Yes

No

Depth (inches):

Water Table Present?

Yes

Na

Depth (inches):

Saturation Present?
(includes capillary fringe)

Yes

No

Depth (inches):

Wetland Hydrology Present? Yes

Yes

No.

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

terrace adj to check / no indicators present

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SACTIP City/County: Camp Pendleton, SD Sampling Date: 7/24/07 ^{11/5/07}
 Applicant/Owner: TCA State: CA Sampling Point: CCC-19
 Investigator(s): Monahan, J. P. Monahan, M. Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): top of slope Local relief (concave, convex, none): flat Slope (%): 2%
 Subregion (LRR): C Lat: 117° 35' 39.342 Long: 33° 23' 24.213 Datum: NAD83
 Soil Map Unit Name: Tuyunga Sand, 0-5% slopes NWI classification: NONE
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☐ No ☒ (If no, explain in Remarks.)
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ significantly disturbed? Yes ☒ No ☐
 Are Vegetation ☐, Soil ☐, or Hydrology ☐ naturally problematic? Yes ☒ No ☐ (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Remarks: <u>dry year</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Sambucus mexicana</u>	<u>15</u>	<u>D</u>	<u>fac</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Artemisia californica</u>	<u>25</u>	<u>D</u>	<u>upl</u>	
2. <u>Prosopis juliflora</u>	<u>35</u>	<u>D</u>	<u>upl</u>	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
Total Cover: _____				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Hamamelis virginica</u>	<u>20</u>	<u>D</u>	<u>upl</u>	
2. _____	_____	_____	_____	___ Prevalence Index is ≤3.0 ¹
3. _____	_____	_____	_____	___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: _____				
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>80%</u>	% Cover of Biotic Crust _____			
Remarks: _____				

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[illegible]

S: None present

have present

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SOCTIP City/County: Gunnison, SD Sampling Date: 7/24/07
 Applicant/Owner: TCA State: LA Sampling Point: CCC-15
 Investigator(s): Ingrid Churp, Thiaman W Section, Township, Range: 14S, 79S, R7W
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): Slope Slope (%): 2%
 Subregion (LRR): C Let: 117°35'39.362 Long: 33°23'24.213 Datum: NAD83
 Soil Map Unit Name: Tupunga sand, 0-5% slopes NWI classification: HA freshwater forested/shrub wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If no, explain in Remarks.)
 Are Vegetation , Soil , or Hydrology significantly disturbed? N Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present?	Yes <u> </u> No <u>X</u>	
Wetland Hydrology Present?	Yes <u> </u> No <u>X</u>	
Remarks: <u>Dry grass</u>		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
Total Cover: <u> </u>				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
Sapling/Shrub Stratum 1. <u>Artemisia californica</u> <u>25</u> <u>D</u> <u>upl</u> 2. <u>baccharis pilularis</u> <u>50</u> <u>D</u> <u>upl</u> 3. <u> </u> <u> </u> <u> </u> <u> </u> 4. <u> </u> <u> </u> <u> </u> <u> </u> 5. <u> </u> <u> </u> <u> </u> <u> </u>				
Total Cover: <u> </u>				
Herb Stratum 1. <u>Trifolium vulgare</u> <u>25</u> <u>D</u> <u>fach</u> 2. <u> </u> <u> </u> <u> </u> <u> </u> 3. <u> </u> <u> </u> <u> </u> <u> </u> 4. <u> </u> <u> </u> <u> </u> <u> </u> 5. <u> </u> <u> </u> <u> </u> <u> </u> 6. <u> </u> <u> </u> <u> </u> <u> </u> 7. <u> </u> <u> </u> <u> </u> <u> </u> 8. <u> </u> <u> </u> <u> </u> <u> </u>				
Total Cover: <u> </u>				
Woody Vine Stratum 1. <u> </u> <u> </u> <u> </u> <u> </u> 2. <u> </u> <u> </u> <u> </u> <u> </u>				Hydrophytic Vegetation Indicators: ___ Dominance Test is >50% ___ Prevalence Index is ≤3.0 ¹ ___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ___ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
Total Cover: <u> </u>				
% Bare Ground in Herb Stratum <u>75%</u> % Cover of Biotic Crust <u> </u>				
Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>				
Remarks: <u> </u>				

Sampling Point:

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Rock Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|--|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input checked="" type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |
- ³Indicators of hydrophytic vegetation and wetland hydrology must be present

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____ None

Hydric Soil Present? Yes _____ No ☒

Remarks:

None present

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

Secondary Indicators (2 or more required)

- | | | |
|---|---|---|
| ___ Surface Water (A1) | ___ Salt Crust (B11) | ___ Water Marks (B1) (Riverine) |
| ___ High Water Table (A2) | ___ Biotic Crust (B12) | ___ Sediment Deposits (B2) (Riverine) |
| ___ Saturation (A3) | ___ Aquatic Invertebrates (B13) | ___ Drift Deposits (B3) (Riverine) |
| ___ Water Marks (B1) (Nonriverine) | ___ Hydrogen Sulfide Odor (C1) | ___ Drainage Patterns (B10) |
| ___ Sediment Deposits (B2) (Nonriverine) | ___ Oxidized Rhizospheres along Living Roots (C3) | ___ Dry-Season Water Table (C2) |
| ___ Drift Deposits (B3) (Nonriverine) | ___ Presence of Reduced Iron (C4) | ___ Thin Muck Surface (C7) |
| ___ Surface Soil Cracks (B5) | ___ Recent Iron Reduction in Flowed Soils (C6) | ___ Crayfish Burrows (C8) |
| ___ Inundation Visible on Aerial Imagery (B7) | ___ Other (Explain in Remarks) | ___ Saturation Visible on Aerial Imagery (C5) |
| ___ Water-Stained Leaves (B9) | | ___ Shallow Aquitard (D3) |
| | | ___ FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): _____

Water Table Present? Yes ☐ No ☒ Depth (inches): _____

Saturation Present? Yes ☐ No ☒ Depth (inches): _____
(includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

attachment / full rope

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SOCTIUP City/County: Camp Pendleton, San Diego County Sampling Date: 7/24/07 ^{11/1/07}
 Applicant/Owner: TCA State: CA Sampling Point: CC16
 Investigator(s): JChap, T Ly Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 40%
 Subregion (LRR): C Lat: 117°34'39.41 Long: 33°23'1.301 Datum: NAD83
 Soil Map Unit Name: Visalia sandy loam, 0-2% slopes NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No N (If no, explain in Remarks.) Dry year
 Are Vegetation , Soil , or Hydrology N significantly disturbed? Are "Normal Circumstances" present? Yes X No
 Are Vegetation , Soil , or Hydrology N naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Hydric Soil Present? Yes <u> </u> No <u> </u>	
Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	
Remarks: <u>slope adj to San Antonio creek</u> <u>CCC</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. <u> </u>				
2. <u> </u>				
3. <u> </u>				
4. <u> </u>				
Total Cover: <u> </u>				Prevalence Index worksheet: Total % Cover of: <u> </u> Multiply by: OBL species <u> </u> x 1 = <u> </u> FACW species <u> </u> x 2 = <u> </u> FAC species <u> </u> x 3 = <u> </u> FACU species <u> </u> x 4 = <u> </u> UPL species <u> </u> x 5 = <u> </u> Column Totals: <u> </u> (A) <u> </u> (B) Prevalence Index = B/A = <u> </u>
Sapling/Shrub Stratum <u>isomeris arborea</u> 1. <u>Sambucus mexicana</u> <u>5</u> <u> </u> <u>upl</u> <u>10</u> <u> </u> <u>fac</u> 2. <u>Maiosma laurina</u> <u>15</u> <u>D</u> <u>upl</u> 3. <u>Eriogonum fasciculatum</u> <u>5</u> <u> </u> <u>upl</u> 4. <u>Artemisia californica</u> <u>15</u> <u>D</u> <u>upl</u> 5. <u>Baccharis pilularis</u> <u>15</u> <u>D</u> <u>upl</u> <u>Rhus integrifolia</u> <u>10</u> <u> </u> <u>upl</u> Total Cover: <u>75</u>				
Herb Stratum 1. <u>brassica nira</u> <u>40</u> <u>D</u> <u>upl</u> 2. <u>Campobrotus edulis</u> <u>40</u> <u>D</u> <u>upl</u> 3. <u>gouania barilans</u> <u>5</u> <u> </u> <u>upl</u> 4. <u>Brickellia diffusa</u> <u>5</u> <u> </u> <u>upl</u> 5. <u> </u> 6. <u> </u> 7. <u> </u> 8. <u> </u> Total Cover: <u>90</u>				
Woody Vine Stratum 1. <u> </u> 2. <u> </u> Total Cover: <u> </u>				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u> </u>				
Remarks:				Hydrophytic Vegetation Present? Yes <u> </u> No <u>X</u>

SOIL

Sampling Point: 16

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/4	100%	None					Free Silty

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____
Depth (inches): _____Hydric Soil Present? Yes _____ No ☒

Remarks:

fill slope / none present

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | | <input type="checkbox"/> Shallow Aquitard (D3) |
| | | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes _____ No ☒ Depth (inches): _____
 Water Table Present? Yes _____ No ☒ Depth (inches): _____
 Saturation Present? Yes _____ No ☒ Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 47, 67, 70, 75, 77, 87, 95, 06 all

Remarks:

None present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SOCT/1P City/County: Camp Pendleton, SD Sampling Date: 11/5/07
 Applicant/Owner: TCA State: CA Sampling Point: SN map 635
 Investigator(s): TL, IC, TK Section, Township, Range: S14, T15, R7W
 Landform (hillslope, terrace, etc.): Rock bed Local relief (concave, convex, none): Slope Slope (%): 2%
 Subregion (LRR): C Lat: _____ Long: _____ Datum: NAD 83
 Soil Map Unit Name: tujunga sand 10-50% slope NWI classification: freshwater Great/Small Wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.) dry year
 Are Vegetation _____ Soil _____ or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes X No _____ 1+2
 Are Vegetation _____ Soil _____ or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks:		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
1. <u>Salix lasiolepis</u>	<u>100</u>	<u>D</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: <u>100%</u>	_____	_____	_____	
Sapling/Shrub Stratum				Hydrophytic Vegetation Indicators: <u>X</u> Dominance Test is >50% ____ Prevalence Index is ≤3.0 ¹ ____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
Herb Stratum				¹ Indicators of hydric soil and wetland hydrology must be present.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes <u>X</u> No _____
1. _____	_____	_____	_____	
Total Cover: _____				Remarks:
% Bare Ground in Herb Stratum <u>100%</u> % Cover of Biotic Crust _____				

SOIL

Sampling Point: 17

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0- 2 2								organic matter
2-6	10YR 4/2		none				Sandy clay	
6-11	2.5Y 4/3		10YR 4/4		C	M	Sandy clay	

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F1B)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

None

Hydric Soil Present? Yes _____ No X

Remarks:

None present

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C5)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Water-Stained Leaves (B9)	

Secondary Indicators (2 or more required)

<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____Water Table Present? Yes _____ No X Depth (inches): _____Saturation Present? Yes _____ No X Depth (inches): _____
(includes capillary fringe)Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 47, 67, 70, 75, 77, 87, 95, 06 avel

Remarks:

on slope, elevated ~ 6' above elevation at which channel
groundwater has been detected in past

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: SOCTIP City/County: Compton, CA Sampling Date: 11/1/07
 Applicant/Owner: TCA State: CA Sampling Point: 18 Utility
 Investigator(s): JG/TL/HK Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): adj to creek Local relief (concave, convex, none): none Slope (%): <1%
 Subregion (LRR): C Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Tiny Sand NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil X, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	

Remarks: dry year, some history of OG

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species <u>5</u> x 3 = <u>15</u>
5. _____	_____	_____	_____	FACU species <u>80</u> x 4 = <u>320</u>
Total Cover: _____				UPL species _____ x 5 = _____
Herb Stratum				Column Totals: <u>85</u> (A) <u>335</u> (B)
1. <u>Synodon dactyloides</u>	<u>80%</u>	<u>Y</u>	<u>FACU</u>	Prevalence Index = B/A = <u>3.9</u>
2. <u>Portulaca oleracea</u>	<u>5%</u>	<u>N</u>	<u>FAC</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: _____				
Woody Vine Stratum				Hydrophytic Vegetation Indicators:
1. _____	_____	_____	_____	___ Dominance Test is >50% <u>N</u>
2. _____	_____	_____	_____	___ Prevalence Index is ≤3.0 <u>N</u>
				___ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <u>N</u>
				___ Problematic Hydrophytic Vegetation ¹ (Explain)
				¹ Indicators of hydric soil and wetland hydrology must be present.
Total Cover: _____				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
% Bare Ground in Herb Stratum <u>15%</u> % Cover of Biotic Crust _____				

Remarks:

Sampling Point:

13

[illegible]

Indicators for Problematic Hydric Soils³:

- ⁵Indicators of hydrophytic vegetation and wetland hydrology must be present.

Hydric Soil Present? Yes ☐ No ☒

Wm. J. S. 1897

Secondary Indicators (2 or more required)

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B7) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B5)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C5)	<input type="checkbox"/> Crayfish Burrows (C6)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

Wetland Hydrology Present? Yes _____ No ☒

32, 41, 47, ~~64~~, 70, 75, 77, 87, 95, 06 overall

nonreversible

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SOCTIIP City/County: Camp Pendleton OC Sampling Date: 11/5/07
 Applicant/Owner: TCA State: CA Sampling Point: 19
 Investigator(s): IC/TL AK Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): —
 Subregion (LRR): C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: tupega sand NWI classification: None
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>	
Wetland Hydrology Present?	Yes _____ No <u>X</u>	
Remarks: <u>dry year</u>		

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
1. <u>Amelanchier alnifolia</u>	<u>100%</u>	<u>Y</u>	<u>facw</u>	
2. _____	_____	_____	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species <u>100</u> x 2 = <u>200</u> FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species <u>95</u> x 5 = <u>425</u> Column Totals: <u>195</u> (A) <u>625</u> (B) Prevalence Index = B/A = <u>3.4</u>
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: <u>100%</u>				
Sapling/Shrub Stratum				Hydrophytic Vegetation Indicators: ____ Dominance Test is >50% ____ Prevalence Index is ≤3.0 ¹ ____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
Total Cover: _____				
Herb Stratum				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
1. <u>Lupinus albus</u>	<u>85%</u>	<u>Y</u>	<u>upl</u>	
2. _____	_____	_____	_____	Remarks:
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>85%</u>				
Woody Vine Stratum				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>15%</u>	Total Cover: _____	% Cover of Biotic Crust _____		

SOIL

Sampling Point: 19

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
<u>0-2</u>	<u>10YR 2/2</u>		<u>none</u>					<u>fine silty clay</u>
<u>2-16</u>	<u>2.5Y 3/2</u>		<u>none</u>					

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- | | | |
|--|---|---|
| <input type="checkbox"/> Histosol (A1) | <input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> 1 cm Muck (A9) (LRR C) |
| <input type="checkbox"/> Histic Epipedon (A2) | <input type="checkbox"/> Stripped Matrix (S6) | <input type="checkbox"/> 2 cm Muck (A10) (LRR B) |
| <input type="checkbox"/> Black Histic (A3) | <input type="checkbox"/> Loamy Mucky Mineral (F1) | <input type="checkbox"/> Reduced Vertic (F18) |
| <input type="checkbox"/> Hydrogen Sulfide (A4) | <input type="checkbox"/> Loamy Gleyed Matrix (F2) | <input type="checkbox"/> Red Parent Material (TF2) |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C) | <input type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D) | <input type="checkbox"/> Redox Dark Surface (F6) | |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) | |
| <input type="checkbox"/> Thick Dark Surface (A12) | <input type="checkbox"/> Redox Depressions (F8) | |
| <input type="checkbox"/> Sandy Mucky Mineral (S1) | <input type="checkbox"/> Vernal Pools (F9) | |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4) | | |

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: none
Depth (inches): _____Hydric Soil Present? Yes _____ No X

Remarks:

no indicators present

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- | | | |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1) | <input type="checkbox"/> Salt Crust (B11) | <input type="checkbox"/> Water Marks (B1) (Riverine) |
| <input type="checkbox"/> High Water Table (A2) | <input type="checkbox"/> Biotic Crust (B12) | <input type="checkbox"/> Sediment Deposits (B2) (Riverine) |
| <input type="checkbox"/> Saturation (A3) | <input type="checkbox"/> Aquatic Invertebrates (B13) | <input type="checkbox"/> Drift Deposits (B3) (Riverine) |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine) | <input type="checkbox"/> Hydrogen Sulfide Odor (C1) | <input type="checkbox"/> Drainage Patterns (B10) |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine) | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine) | <input type="checkbox"/> Presence of Reduced Iron (C4) | <input type="checkbox"/> Thin Muck Surface (C7) |
| <input type="checkbox"/> Surface Soil Cracks (B6) | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6) | <input type="checkbox"/> Crayfish Burrows (C8) |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks) | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9) | | <input type="checkbox"/> Shallow Aquitard (D3) |
| | | <input type="checkbox"/> FAC-Neutral Test (D5) |

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____
 Water Table Present? Yes _____ No X Depth (inches): _____
 Saturation Present? Yes _____ No X Depth (inches): _____
 (includes capillary fringe)

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 47, 67, 70, 75, 77, 87, 95, 06 aerial

Remarks:

none present

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SOCTUP City/County: Compton, CA Sampling Date: 11/5/09
 Applicant/Owner: TCA State: CA Sampling Point: 20
 Investigator(s): IC/ILTK Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): adfluvium Local relief (concave, convex, none): none Slope (%): 0
 Subregion (LRR): C Lat: _____ Long: _____ Datum: NAD 83
 Soil Map Unit Name: Tujunga Sand NWI classification: none
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland?	Yes _____ No <u>X</u>
Hydric Soil Present?	Yes _____ No <u>X</u>		
Wetland Hydrology Present?	Yes _____ No <u>X</u>		
Remarks: <u>dry year</u>			

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Sauvignacensis</u>	<u>15%</u>	<u>N</u>	<u>facw</u>	
2. <u>Sambucus mexicana</u>	<u>50%</u>	<u>D</u>	<u>fac</u>	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50%</u> (A/B)
4. _____				
Total Cover: <u>65%</u>				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species <u>15</u> x 2 = <u>30</u>
4. _____				FAC species <u>50</u> x 3 = <u>150</u>
5. _____				FACU species _____ x 4 = _____
Total Cover: _____				UPL species <u>50</u> x 5 = <u>250</u>
				Column Totals: <u>115</u> (A) <u>430</u> (B)
				Prevalence Index = B/A = <u>3.7</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Toxicodendron diversilobum</u>	<u>50%</u>	<u>D</u>	<u>up1</u>	_____ Dominance Test is >50%
2. _____				_____ Prevalence Index is ≤3.0 ¹
3. _____				_____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
4. _____				_____ Problematic Hydrophytic Vegetation ¹ (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>50%</u>				¹ Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum				Hydrophytic Vegetation Present?
1. _____				Yes _____ No <u>X</u>
2. _____				
Total Cover: <u>50%</u>				
% Bare Ground in Herb Stratum <u>50%</u> % Cover of Biotic Crust _____				
Remarks: <u>surrounded by upland veg as indicated DS 21</u> <u>willow saplings to be rooted deeply, no surface hydrology is apparent</u> <u>+ topographic conditions are not significantly different from surrounding areas dominated by upland areas</u>				

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SOCALUP City/County: Cap Pendleton OC Sampling Date: 6/5/07
 Applicant/Owner: TCA State: CA Sampling Point: 21
 Investigator(s): TLIC/TK Section, Township, Range: T9S, R7W, S14
 Landform (hillslope, terrace, etc.): old floodplain Local relief (concave, convex, none): flat Slope (%): 2
 Subregion (LRR): C Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: tupega sand NWI classification: freshwater forest/shrub wetland
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	
Remarks: <u>Dry season</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)														
1. <u>elderberry Sambucus mexicana</u>	<u>20%</u>	<u>Y</u>	<u>fac</u>															
2. _____	_____	_____	_____															
3. _____	_____	_____	_____															
4. _____	_____	_____	_____															
Total Cover: _____				Prevalence Index worksheet: <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>x 1 = _____</td> </tr> <tr> <td>FACW species</td> <td>x 2 = <u>10</u></td> </tr> <tr> <td>FAC species</td> <td>x 3 = <u>60</u></td> </tr> <tr> <td>FACU species</td> <td>x 4 = _____</td> </tr> <tr> <td>UPL species</td> <td>x 5 = <u>400</u></td> </tr> <tr> <td>Column Totals:</td> <td><u>105</u> (A) <u>470</u> (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>4.5</u>	Total % Cover of:	Multiply by:	OBL species	x 1 = _____	FACW species	x 2 = <u>10</u>	FAC species	x 3 = <u>60</u>	FACU species	x 4 = _____	UPL species	x 5 = <u>400</u>	Column Totals:	<u>105</u> (A) <u>470</u> (B)
Total % Cover of:	Multiply by:																	
OBL species	x 1 = _____																	
FACW species	x 2 = <u>10</u>																	
FAC species	x 3 = <u>60</u>																	
FACU species	x 4 = _____																	
UPL species	x 5 = <u>400</u>																	
Column Totals:	<u>105</u> (A) <u>470</u> (B)																	
Sapling/Shrub Stratum 1. <u>Baccharis salicifolia</u> <u>5</u> <u>N</u> <u>facw</u> 2. <u>brakeleaf pilularis</u> <u>5</u> <u>N</u> <u>upl</u> 3. <u>Sarcocornia densa</u> <u>20</u> <u>Y</u> <u>upl</u> 4. <u>Adenocaulon californicum</u> <u>5</u> <u>N</u> <u>upl</u> 5. _____ Total Cover: <u>35</u>																		
Herb Stratum 1. <u>Brassica nigra</u> <u>50%</u> <u>X</u> <u>upl</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ Total Cover: <u>50%</u>																		
Woody Vine Stratum 1. _____ 2. _____ Total Cover: _____																		
% Bare Ground in Herb Stratum <u>50%</u> % Cover of Biotic Crust _____ Remarks: _____																		

Sampling Point: 21

[illegible]

Name O'Brien

have observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: SOCTIP City/County: Camp Borden, NC Sampling Date: 11/5/07
 Applicant/Owner: TCA State: CA Sampling Point: 22
 Investigator(s): ICITL/TK Section, Township, Range: S14, T9S, R7W
 Landform (hillslope, terrace, etc.): Roadside ditch Local relief (concave, convex, none): concave Slope (%): 4%
 Subregion (LRR): C Lat: _____ Long: _____ Datum: NAD83
 Soil Map Unit Name: Pyrgus sand NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No X (If no, explain in Remarks.)
 Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? N Are "Normal Circumstances" present? Yes X No _____
 Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N (If needed, explain any answers in Remarks.) irrigation has been eliminated in recent past

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No _____
Hydric Soil Present? Yes _____ No _____	
Wetland Hydrology Present? Yes _____ No _____	
Remarks: <u>Dry year</u>	

VEGETATION

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: _____				
Sapling/Shrub Stratum				
1. <u>Baccharis salicifolia</u>	<u>25%</u>	<u>Y</u>	<u>facw</u>	Hydrophytic Vegetation Indicators: ____ Dominance Test is >50% ____ Prevalence Index is ≤3.0 ¹ ____ Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) ____ Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present.
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
Total Cover: <u>25</u>				
Herb Stratum				
1. <u>Baccharis salicifolia</u>	<u>10</u>	<u>N</u>	<u>facw</u>	Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. <u>Camissonia acutifolia</u>	<u>15</u>	<u>N</u>	<u>fac</u>	
3. <u>Brassica nigra</u>	<u>30</u>	<u>Y</u>	<u>upl</u>	
4. _____	_____	_____	_____	
Total Cover: <u>55</u>				
Woody Vine Stratum				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>45</u> % Cover of Biotic Crust _____				
Remarks:				

SOIL

Sampling Point: _____

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features		Type ¹	Loc ²	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-6	10YR3/6							fine s. clay
6-8	10YR3/2		10YR5/6	2%	C	M		" fine s. clay
8-16	10YR3/2							"

¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils³:

- ☐ Histosol (A1)
☐ Histic Epipedon (A2)
☐ Black Histic (A3)
☐ Hydrogen Sulfide (A4)
☐ Stratified Layers (A5) (LRR C)
☐ 1 cm Muck (A9) (LRR D)
☐ Depleted Below Dark Surface (A11)
☐ Thick Dark Surface (A12)
☐ Sandy Mucky Mineral (S1)
☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
☐ Stripped Matrix (S6)
☐ Loamy Mucky Mineral (F1)
☐ Loamy Gleyed Matrix (F2)
☐ Depleted Matrix (F3)
☐ Redox Dark Surface (F6)
☐ Depleted Dark Surface (F7)
☐ Redox Depressions (F8)
☐ Vernal Pools (F9)

- ☐ 1 cm Muck (A9) (LRR C)
☐ 2 cm Muck (A10) (LRR B)
☐ Reduced Vertic (F18)
☐ Red Parent Material (TF2)
☐ Other (Explain in Remarks)

³Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

 Type: _____
 Depth (inches): _____
Hydric Soil Present? Yes _____ No ☒

Remarks:

does not meet

HYDROLOGY

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
☐ High Water Table (A2)
☐ Saturation (A3)
☐ Water Marks (B1) (Nonriverine)
☐ Sediment Deposits (B2) (Nonriverine)
☐ Drift Deposits (B3) (Nonriverine)
☐ Surface Soil Cracks (B6)
☐ Inundation Visible on Aerial Imagery (B7)
☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
☐ Biotic Crust (B12)
☐ Aquatic Invertebrates (B13)
☐ Hydrogen Sulfide Odor (C1)
☐ Oxidized Rhizospheres along Living Roots (C3)
☐ Presence of Reduced Iron (C4)
☐ Recent Iron Reduction in Plowed Soils (C6)
☐ Other (Explain in Remarks)

- ☐ Water Marks (B1) (Riverine)
☒ Sediment Deposits (B2) (Riverine)
☐ Drift Deposits (B3) (Riverine)
☐ Drainage Patterns (B10)
☐ Dry-Season Water Table (C2)
☐ Thin Muck Surface (C7)
☐ Crayfish Burrows (C8)
☐ Saturation Visible on Aerial Imagery (C9)
☐ Shallow Aquitard (D3)
☐ FAC-Neutral Test (D5)

Field Observations:

 Surface Water Present? Yes _____ No ☒ Depth (inches): _____
 Water Table Present? Yes _____ No ☒ Depth (inches): _____
 Saturation Present? Yes _____ No ☒ Depth (inches): _____
 (includes capillary fringe)
Wetland Hydrology Present? Yes _____ No ☒

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

32, 41, 47, 67, 70, 75, 77, 87, 95, 06 gvw

Remarks:

none visible indicating saturation or inundation for extended period

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>FTC</u> Applicant/Owner: <u>TCA</u> Investigator: <u>IC/Scott Holbrook</u>	Date: <u>8/23/01</u> County: <u>OK</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: <u>San Mateo</u> Transect ID: <u>Under bridge I-5</u> Plot ID: <u>FEOP So</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Cyperus sp.</u>		<u>2 Facw</u>	9. _____		
2. <u>Salix lasiolepis</u>		<u>Facw</u>	10. _____		
3. <u>J. monkanus</u>		<u>Facw</u>	11. _____		
4. <u>Red willow Salix laevigata</u>		<u>Facw+</u>	12. _____		
5. <u>epilobium ciliatum</u>		<u>Facw</u>	13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 100 %

Remarks: meets for hydrophytic vegetation

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u> </u> (in.)</p> <p>Depth to Free Water in Pit: <u> </u> (in.)</p> <p>Depth to Saturated Soil: <u>6</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input checked="" type="checkbox"/> Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p>___ Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
<p>Remarks: <u>pit on fringe of flowing creek</u> <u>meets for hydrology</u></p>	

SOILS

Map Unit Name (Series and Phase): <u>Ruermash</u>			Drainage Class: _____		
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type? <u>Yes</u> No		
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-2	A	5Y 4/2	2.5Y 6/6	few/faint	silty clay loam coarse sand
2-6	B	mineral grains	10YR 5/8	common/distinct	coarse sand

Hydric Soil Indicators:

<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chrome Colors	<input checked="" type="checkbox"/> Concretions <input checked="" type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)
---	--

Remarks: meets for hydric soils

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <u>Yes</u> No (Circle) Wetland Hydrology Present? <u>Yes</u> No Hydric Soils Present? <u>Yes</u> No	Is this Sampling Point Within a Wetland? <u>Yes</u> No (Circle)
Remarks:	

Project/Site: <u>RA/San Mateo Creek</u>	Date: <u>5/1/81</u>
Applicant/Owner: <u>1</u>	County: <u>Orange</u>
Investigator: <u>D. Markowitz, D. Schone</u>	State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>San Mateo</u> Transect ID: Plot ID: <u>500 51</u>

Dominant Plant Species	Stratum	Indicator
1. <u>Salix lucida</u>		<u>OBL</u>
2. <u>Salix lasiolepis</u>		<u>FACW</u>
3. <u>Typha domingensis</u>		<u>OBL</u>
4. <u>Sagittaria arifolia</u>		<u>OBL</u>
5. <u>Eleocharis acicularis</u>		<u>OBL</u>
6. _____		
7. _____		
8. _____		

Dominant Plant Species	Stratum	Indicator
9. _____		
10. _____		
11. _____		
12. _____		
13. _____		
14. _____		
15. _____		
16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-):

5/5 = 100% of Dominant Species Wet

Remarks: Meet Criteria for Hydrophilic Veg.

<p>Recorded Data (Describe in Remarks):</p> <p><input type="checkbox"/> Stream, Lake, or Tide Gauge</p> <p><input type="checkbox"/> Aerial Photographs</p> <p><input type="checkbox"/> Other</p> <p><input type="checkbox"/> No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u> </u> (in.)</p> <p>Depth to Free Water in Pit: <u> </u> (in.)</p> <p>Depth to Saturated Soil: <u> </u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: Meets for Hydrology</p>	

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: <u>FF</u> Applicant/Owner: <u>TCL</u> Investigator: <u>T.C. [unclear]</u>	Date: <u>2/23/01</u> County: <u>Or</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? Yes No Is the site significantly disturbed (Atypical Situation)? Yes No Is the area a potential Problem Area? Yes No (If needed, explain on reverse.)	Community ID: <u>San Mateo</u> Transect ID: _____ Plot ID: <u>Prop 82</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Salix lasiolepis</u>	<u>T</u>	<u>Fac W</u>	9. _____	_____	_____
2. <u>Larcharis salicifolia</u>	_____	<u>Fac W</u>	10. _____	_____	_____
3. <u>Salicornia sp.</u>	_____	<u>NI - Fac</u>	11. _____	_____	_____
4. <u>Echinachloa sp.</u>	_____	<u>Σ Fac W</u>	12. _____	_____	_____
5. <u>Polygonum lapathifolium</u>	_____	<u>OBL</u>	13. _____	_____	_____
6. <u>Scirpus californicus</u>	_____	<u>OBL</u>	14. _____	_____	_____
7. _____	_____	_____	15. _____	_____	_____
8. _____	_____	_____	16. _____	_____	_____

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): _____

Remarks: > 5/6 hydrophytic

HYDROLOGY

<p>___ Recorded Date (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ___ No Recorded Date Available</p> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 inches</p> <p>___ Water Marks</p> <p><input checked="" type="checkbox"/> Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p>___ Oxidized Root Channels in Upper 12 inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
Remarks: _____	

Map Unit Name (Series and Phase):		<u>tidal flats</u>		Drainage Class:	<u></u>
				Field Observations	
Taxonomy (Subgroup):		<u></u>		Confirm Mapped Type? Yes No	
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structures, etc.
0-12	A			muc	silt sand
					C

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☒ Sulfidic Odor
- ☒ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks: dune soil - hydric

Hydrophytic Vegetation Present?	Yes No (Circle)	(Circle)
Wetland Hydrology Present?	Yes No	
Hydric Soils Present?	Yes No	
Is this Sampling Point Within a Wetland?		Yes No
Remarks: Hydric soils assumed w/ expectation of consistently high water table in rainy season (more than 30 consecutive days most years) ⇒ aquatic or peraquic moisture regime		

Approved by HQ ISACE 3/92

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>FTC</u> Applicant/Owner: <u>TCA</u> Investigator: <u>J. Chup/S. Edun</u>	Date: <u>8/31/01</u> County: <u>OK</u> State: <u>OK</u>		
Do Normal Circumstances exist on the site? Is the site significantly disturbed (Atypical Situation)? Is the area a potential Problem Area? (If needed, explain on reverse.)	<table style="width: 100%;"> <tr> <td style="text-align: center;"> <input checked="" type="radio"/> Yes <input type="radio"/> No </td> <td style="text-align: center;"> <input type="radio"/> Yes <input checked="" type="radio"/> No </td> </tr> </table> Community ID: <u>Sonoma</u> Transect ID: _____ Plot ID: <u>FEOP 53</u>	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No
<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No		

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>blatula</u>		<u>OBL</u>	9. _____		
2. _____			10. _____		
3. _____			11. _____		
4. _____			12. _____		
5. _____			13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): _____

Remarks: No understory very high CWD/litter cover

HYDROLOGY

<p>Recorded Data (Describe in Remarks):</p> <p>___ Stream, Lake, or Tide Gauge</p> <p>___ Aerial Photographs</p> <p>___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u>1</u> (in.)</p> <p>Depth to Free Water in Pit: <u>1</u> (in.)</p> <p>Depth to Saturated Soil: <u>1</u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p>___ Inundated</p> <p>___ Saturated in Upper 12 Inches</p> <p>___ Water Marks</p> <p>___ Drift Lines</p> <p><input checked="" type="checkbox"/> Sediment Deposits</p> <p><input checked="" type="checkbox"/> Drainage Patterns in Wetlands <u>depression</u></p> <p>Secondary Indicators (2 or more required):</p> <p><input checked="" type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p>___ Water-Stained Leaves</p> <p>___ Local Soil Survey Data</p> <p>___ FAC-Neutral Test</p> <p>___ Other (Explain in Remarks)</p>
Remarks: <u>soils damp / algae mats</u>	

SOILS

Map Unit Name (Series and Phase): <u>tidal flats</u>			Drainage Class: _____		
Taxonomy (Subgroup): _____			Field Observations Confirm Mapped Type? Yes No		
Profile Description:					
Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
0-12	A	2.5Y 3/1	2.5YR 4/6	common/prominent	fine sand to clay
12-16					sand interbedded

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks: layers of fine sand interbedded w/ silt layers & buried organic detritus
hatched

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	(Circle)	
Wetland Hydrology Present?	Yes	No		(Circle)
Hydric Soils Present?	Yes	No		
Is this Sampling Point Within a Wetland?				Yes No
Remarks:				

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Delineation Manual)

Project/Site: <u>FTC</u> Applicant/Owner: <u>TCA</u> Investigator: <u>J Chlip</u>	Date: <u>9/5/01</u> County: <u>MR</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>CPVM19</u> Transect ID: _____ Plot ID: <u>FE00 54</u>

FEVM10

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Centropogon</u>		<u>FACW</u>	9. _____		
2. _____			10. _____		
3. _____			11. _____		
4. _____			12. _____		
5. _____			13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): _____

Remarks: _____

HYDROLOGY

<p>___ Recorded Data (Describe in Remarks):</p> <p style="margin-left: 20px;">___ Stream, Lake, or Tide Gauge</p> <p style="margin-left: 20px;">___ Aerial Photographs</p> <p style="margin-left: 20px;">___ Other</p> <p>___ No Recorded Data Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: _____ (in.)</p> <p>Depth to Free Water in Pit: _____ (in.)</p> <p>Depth to Saturated Soil: _____ (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <ul style="list-style-type: none"> ___ Inundated ___ Saturated in Upper 12 Inches ___ Water Marks ___ Drift Lines ___ Sediment Deposits ___ Drainage Patterns in Wetlands <p>Secondary Indicators (2 or more required):</p> <ul style="list-style-type: none"> ___ Oxidized Root Channels in Upper 12 Inches ___ Water-Stained Leaves ___ Local Soil Survey Data ___ FAC-Neutral Test ___ Other (Explain in Remarks)
<p>Remarks: <u>ponding 2-13-01 to 2-21-01 after</u></p>	

SOILS

Map Unit Name (Series and Phase): <u>Visalia sandyloam 2 to 5% slope</u>		Drainage Class: _____	
Taxonomy (Subgroup): <u>Pachic Haploxerolls</u>		Field Observations Confirm Mapped Type? Yes No	

Profile Description:		Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structures, etc.
Depth (Inches)	Horizon				
					<u>Sandyloam</u>

Hydric Soil Indicators:	
<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chrome Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input type="checkbox"/> Other (Explain in Remarks)

Remarks: ponding 7 than 7 days minimum observed ponded for 2-13 to 2-21

WETLAND DETERMINATION

Hydrophytic Vegetation Present? <u>Yes</u> No (Circle) Wetland Hydrology Present? <u>Yes</u> No Hydric Soils Present? <u>Yes</u> No	Is this Sampling Point Within a Wetland? <u>Yes</u> No (Circle)
Remarks:	

DATA FORM
ROUTINE WETLAND DETERMINATION
 (1987 COE Wetlands Definition Manual)

Project/Site: <u>FTC</u> Applicant/Owner: <u>TCA</u> Investigator: <u>T. Chlop</u>	Date: <u>9/5/01</u> County: <u>OK</u> State: <u>CA</u>
Do Normal Circumstances exist on the site? <input checked="" type="radio"/> Yes <input type="radio"/> No Is the site significantly disturbed (Atypical Situation)? <input type="radio"/> Yes <input checked="" type="radio"/> No Is the area a potential Problem Area? <input type="radio"/> Yes <input checked="" type="radio"/> No (If needed, explain on reverse.)	Community ID: <u>COMP A</u> Transect ID: _____ Plot ID: <u>FEVP 3</u>

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1. <u>Spartina patens</u>		<u>FACW</u>	9. _____		
2. <u>Spartina patens</u>		<u>FAC</u>	10. _____		
3. <u>Hypochaeris glabra</u>		<u>upl</u>	11. _____		
4. <u>Hypericum</u>		<u>FACW</u>	12. _____		
5. _____			13. _____		
6. _____			14. _____		
7. _____			15. _____		
8. _____			16. _____		

Percent of Dominant Species that are OBL, FACW or FAC (excluding FAC-): 75%

Remarks: most for hydrophyte veg

HYDROLOGY

<p>___ Recorded Date (Describe in Remarks): ___ Stream, Lake, or Tide Gauge ___ Aerial Photographs ___ Other ___ No Recorded Date Available</p> <hr/> <p>Field Observations:</p> <p>Depth of Surface Water: <u> </u> (in.)</p> <p>Depth to Free Water in Pit: <u> </u> (in.)</p> <p>Depth to Saturated Soil: <u> </u> (in.)</p>	<p>Wetland Hydrology Indicators:</p> <p>Primary Indicators:</p> <p><input checked="" type="checkbox"/> Inundated</p> <p><input type="checkbox"/> Saturated in Upper 12 Inches</p> <p><input type="checkbox"/> Water Marks</p> <p><input type="checkbox"/> Drift Lines</p> <p><input type="checkbox"/> Sediment Deposits</p> <p><input type="checkbox"/> Drainage Patterns in Wetlands</p> <p>Secondary Indicators (2 or more required):</p> <p><input type="checkbox"/> Oxidized Root Channels in Upper 12 Inches</p> <p><input type="checkbox"/> Water-Stained Leaves</p> <p><input type="checkbox"/> Local Soil Survey Data</p> <p><input type="checkbox"/> FAC-Neutral Test</p> <p><input type="checkbox"/> Other (Explain in Remarks)</p>
<p>Remarks: <u>observed to be ponded from 2-13 to 2-21/01</u></p> <p style="text-align: right;"><u>see for hydrology data</u></p>	

SOILS

Map Unit Name (Series and Phase): <u>Usalia sandy loam 2 to 5% slope</u>		Drainage Class: _____	
Taxonomy (Subgroup): <u>Psalmi Haploerolls</u>		Field Observations Confirm Mapped Type? Yes No	

Profile Description:		Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
Depth (Inches)	Horizon				
Surface		10YR 3/2	5YR 4/6	fine, many	sandy loam

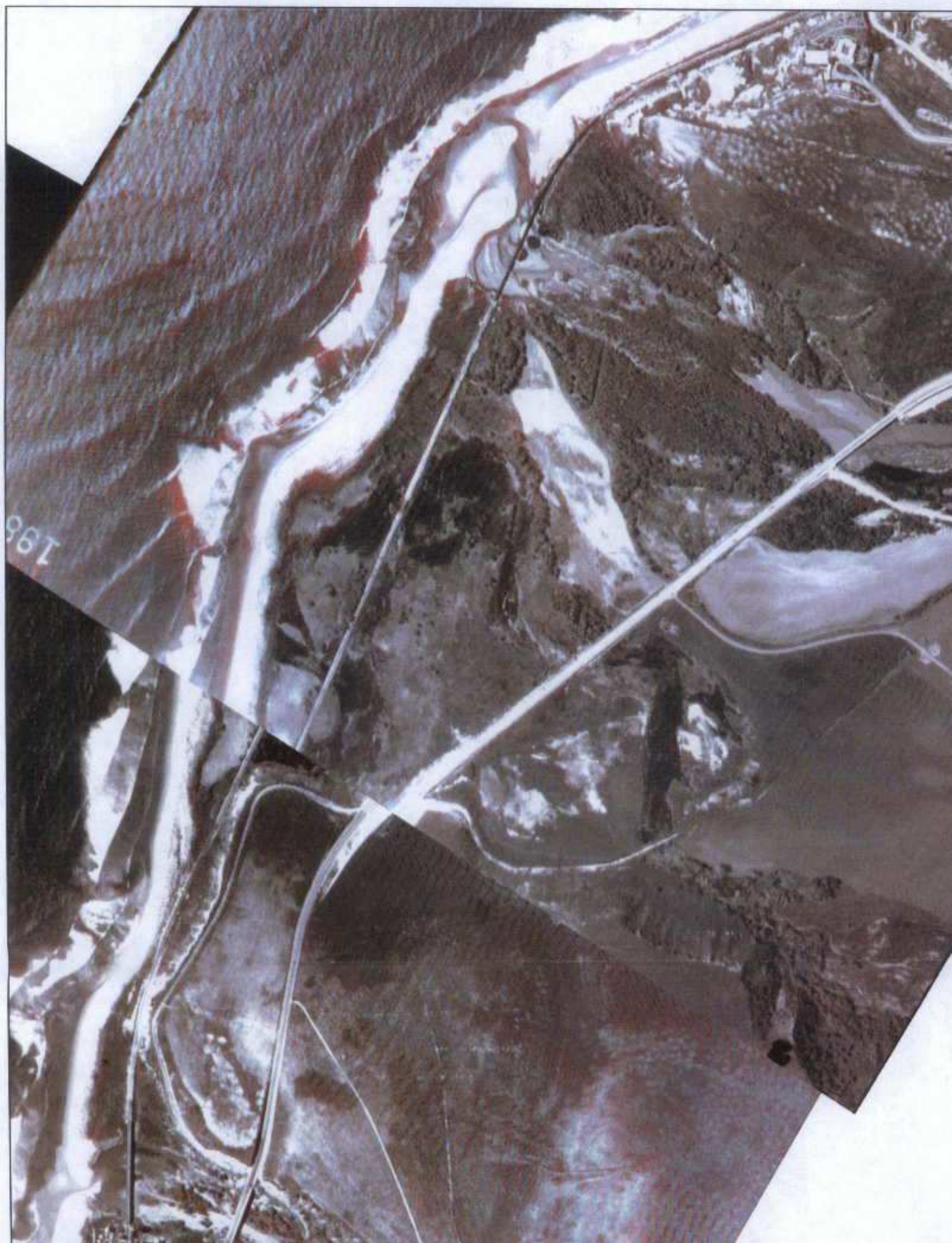
Hydric Soil Indicators:

<input type="checkbox"/> Histosol <input type="checkbox"/> Histic Epipedon <input type="checkbox"/> Sulfidic Odor <input type="checkbox"/> Aquic Moisture Regime <input type="checkbox"/> Reducing Conditions <input type="checkbox"/> Gleyed or Low-Chroma Colors	<input type="checkbox"/> Concretions <input type="checkbox"/> High Organic Content in Surface Layer in Sandy Soils <input type="checkbox"/> Organic Streaking in Sandy Soils <input type="checkbox"/> Listed on Local Hydric Soils List <input type="checkbox"/> Listed on National Hydric Soils List <input checked="" type="checkbox"/> Other (Explain in Remarks)
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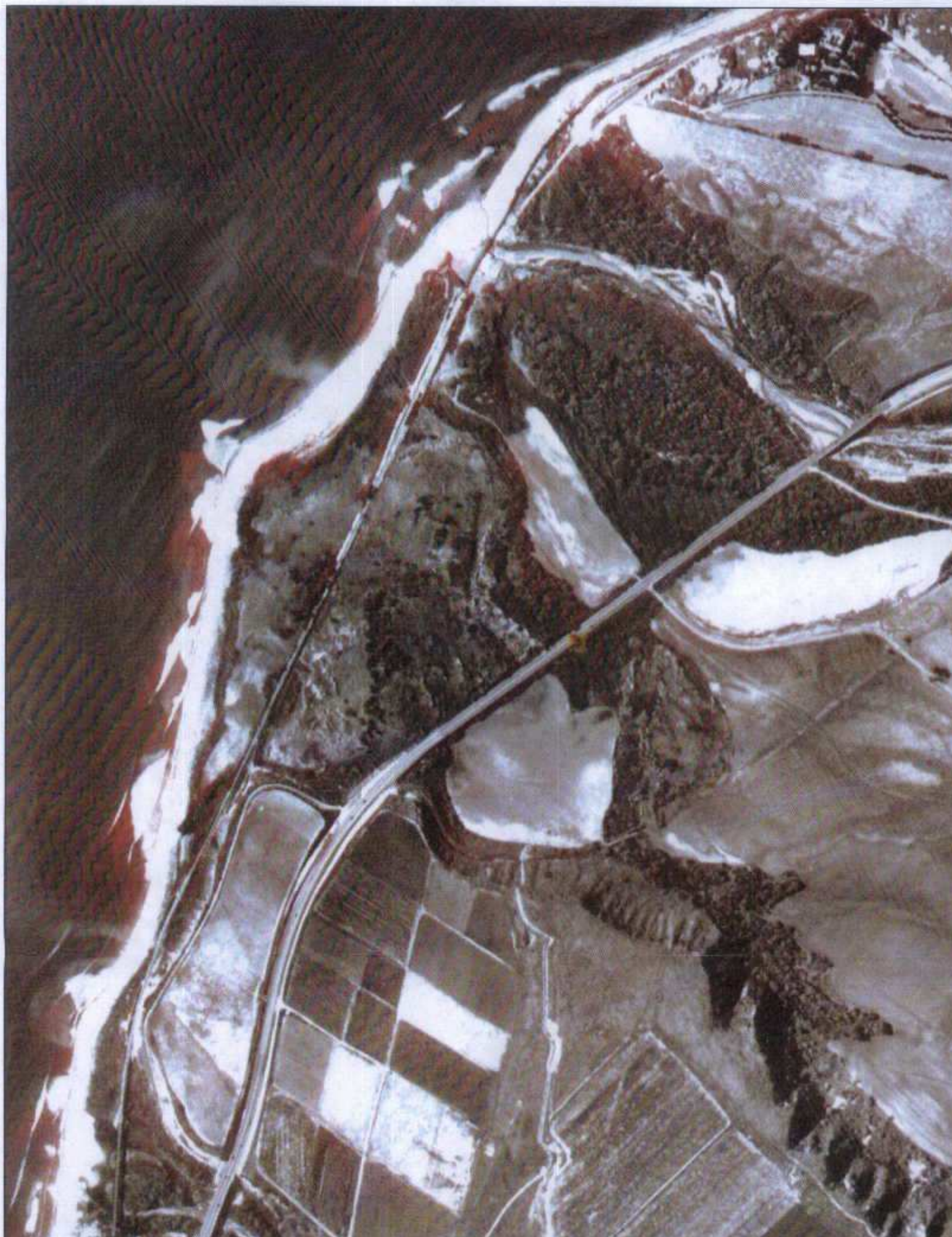
Remarks: ponded for a minimum of 7 days from 2/13/01 to 2/21/01

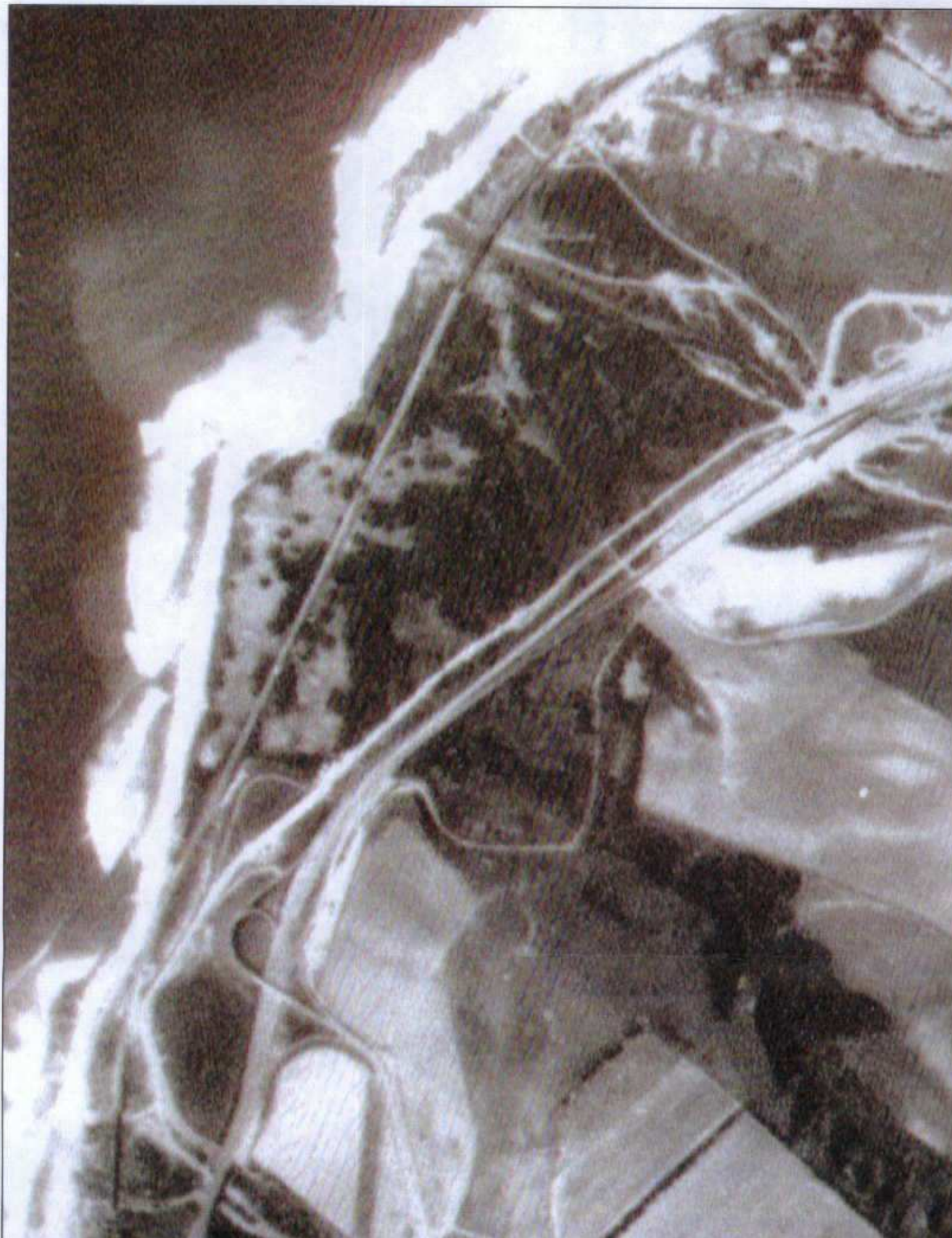
WETLAND DETERMINATION

Hydrophytic Vegetation Present? <u>Yes</u> No (Circle) Wetland Hydrology Present? <u>Yes</u> No Hydric Soils Present? <u>Yes</u> No	Is this Sampling Point Within a Wetland? <u>Yes</u> No (Circle)
Remarks:	



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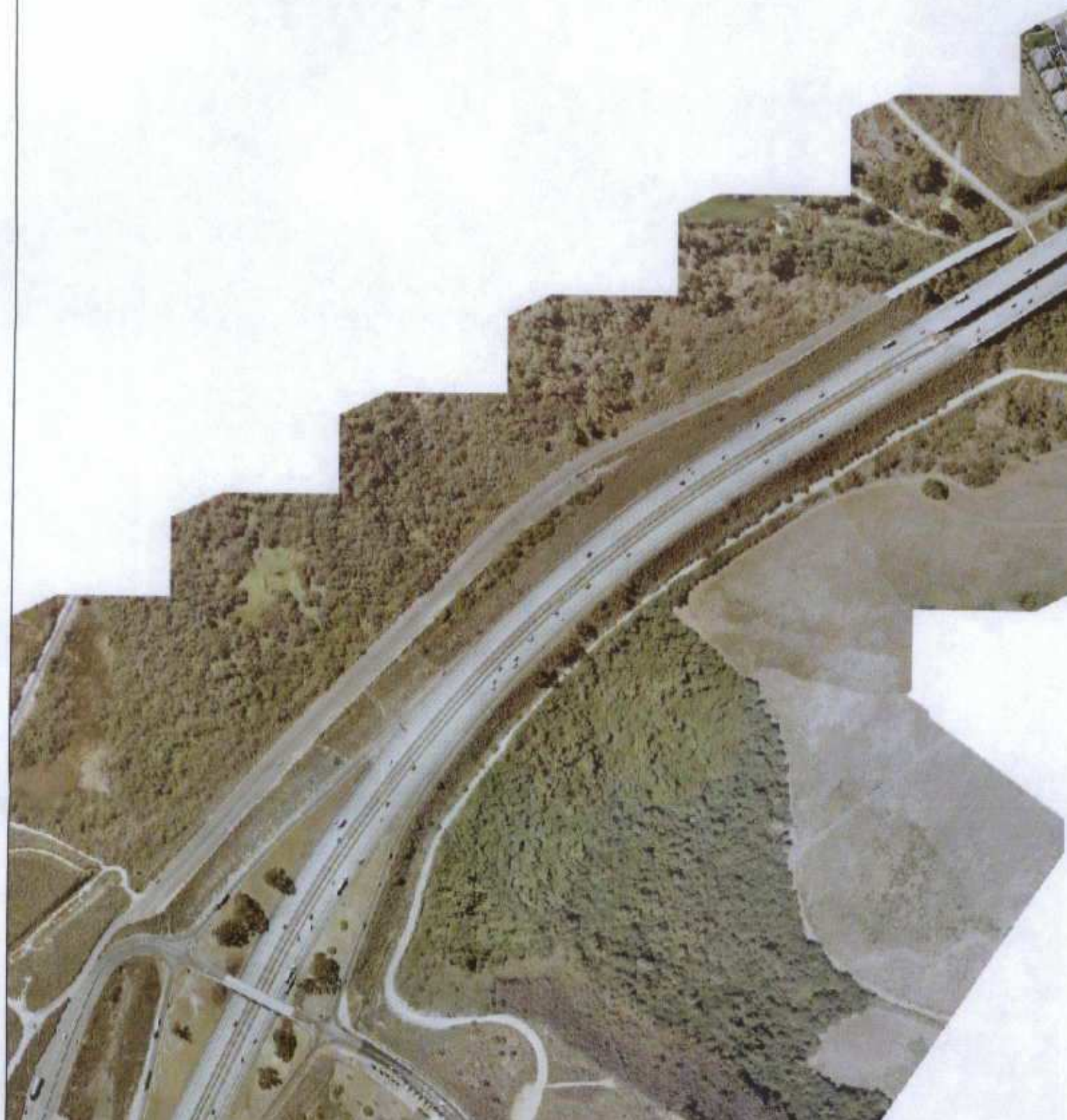












HYBRID FUNCTIONAL ASSESSMENT

FOR AREAS WITHIN THE JURISDICTION OF

CALIFORNIA COASTAL COMMISSION
PURSUANT TO CALIFORNIA COASTAL ACT

SOUTH ORANGE COUNTY TRANSPORTATION
INFRASTRUCTURE IMPROVEMENT PROJECT
ORANGE COUNTY, CALIFORNIA

December 18, 2007

Prepared for:

Transportation Corridor Agencies (TCA)
125 Pacifica
Irvine, CA 92618

Prepared by:

Glenn Lukos Associates
29 Orchard
Lake Forest, California 92630-8300

I. OBJECTIVE OF FUNCTIONAL ASSESSMENT

The purpose of this functional assessment is to characterize and evaluate the functions of California Coastal Commission (CCC) one-parameter wetlands associated with the Foothill Transportation Corridor – South (FTC-S). Specifically, this functional assessment provides for the ability to compare pre- and post-project aquatic functions to demonstrate that no net loss of aquatic function is expected.

A. BACKGROUND

This Hybrid Functional Assessment (HFA) method was developed by combining components of three established functional assessment methods adapted for use at the project site.¹

A total of 21 different metrics were evaluated to determine riparian functions. These metrics are indicators of wetland or riparian function and were evaluated quantitatively in this assessment. All metrics were scaled with values, or metric scores, between 0 (degraded condition) and 1 (optimal condition) and were used to calculate the HFA scores. This HFA first describes the individual metrics that were incorporated into this HFA. The HFA then, using these metrics, provides a quantitative assessment of the riparian resources within the subject study area in the existing condition or pre-project condition. For the purposes of this analysis, the study area was extended 100 feet beyond the impact limits in order to incorporate potential indirect impacts from project implementation. Functions for all features falling within the permanent impact limits were considered to be lost in the post-project condition. Functions for all features falling within temporary impact are presumed to be restored to their previous condition upon project completion. Functions for reaches falling outside of the impact limits but within 100 feet were evaluated for potential reduction in function. The sum of this reduction of function is considered an indirect loss of function.

The metrics evaluated describe three categories of function based on the Corps' Hydrogeomorphic Approach (HGM): hydrologic functions, physical process functions (e.g., biogeochemical functions), and biological functions related to habitat. In addition to functions described under the Corps' HGM approach, functions from the California Rapid Assessment Method (CRAM) and Landscape Level Functional Assessment (LLFA) were incorporated, as categorized in each function heading. In summary, four metrics that describe buffer functions, seven metrics related to hydrological functions, three metrics that describe biogeochemical functions, and eight metrics associated with habitat functions were evaluated. These metrics were derived from the three accepted functional assessment methods that were used in developing the HFA and include the following:

Peer Review Draft Guidebook to Hydrogeomorphic Functional Assessment of Riverine Waters/Wetlands in the Santa Margarita Watershed. (Santa Margarita River HGM = SMR)

¹ The concept of combining different functional assessment methodologies has been previously approved by the Corps. Specifically, URS developed a draft *Hybrid Functional Assessment of Wetland and Riparian Habitats for the Newhall Ranch Habitat Management Plan* in June 2004. The URS HFA was subsequently used by Glenn Lukos Associates to evaluate impacts associated with the Newhall Ranch Riverpark project in Santa Clarita as well as to develop a mitigation program for the Newhall Ranch Santa Clarita Riverpark project. The Corps and CDFG issued authorizations for this project, in part based on the HFA and associated mitigation program developed using the HFA approach.

HGM) This HGM guidebook was developed for use in Southern California, and the reference domain is located in San Diego County.

Draft California Rapid Assessment Method for Wetlands. (CRAM) This method is currently being developed for use by California Department of Fish and Game (CDFG).

Assessment of Riparian Ecosystem Integrity: San Jacinto and Upper Santa Margarita River Watersheds, Riverside County, California. (Landscape Level Functional Assessment = LLFA) This method was developed for use in Special Area Management Plan (SAMP) projects that are ongoing in Orange and Riverside Counties.

Acronyms in this document (e.g., CRAM) refer to the source methodology from which the metric is based. For most metrics, modification was necessary from the original text.

B. METRICS EVALUATED

RIVERINE

The function of riverine systems were evaluated for hydrologic function, biogeochemical function and habitat function using 21 metrics including: percentage of assessment area with buffer, average width of buffer, buffer condition, land use/land cover, water source, hydroperiod, floodplain connection, altered hydraulic conveyance, surface water persistence, flood prone area, sediment regime, topographic complexity, substrate condition, vertical biotic structure, interspersed and zonation, ratio of native to non-native, canopy, age distribution, riparian vegetation condition, riparian corridor continuity and invasive plant species.

DEPRESSIONAL WETLANDS

The function of depressional wetland systems were evaluated for hydrologic function, biogeochemical function and habitat function using 9 metrics including: average width of buffer, buffer condition, water source, hydroperiod, surface water persistence, land use/land cover, substrate condition, ratio of native to non-native, and wetland vegetation condition.

CALCULATING FUNCTIONAL CAPACITY

The reaches were scored from 0.00 to 1.00 for each metric based on the condition of the reach. The Functional Capacity Score was then calculated by summing the scores of the individual metrics for each feature. The proposed mitigation site is scored based on expected function upon completion.

CALCULATING LOSS/GAIN OF FUNCTIONAL CAPACITY

Quantifying the potential direct impact of the proposed project on aquatic resource function was accomplished by overlaying the Proposed Project grading footprint Geographic Information System (GIS) theme on the Aquatic resource theme. The area of aquatic resource subject to permanent impacts is multiplied by the Functional Capacity Score to determine how many Functional Capacity Units are permanently lost (See Appendix A: Table 1). Temporary loss of

function is calculated in the same way as direct loss, however function is expected to be fully restored upon project completion (See Appendix A: Table 4).

Quantifying the potential indirect impact of the Proposed Project on aquatic resource function was accomplished by simulating the changes from the existing conditions that could be expected to occur in each aquatic reach as a result of the construction of the corridor. The majority of changes are expected in Buffer Functions. For example, San Mateo Creek within the 100-foot buffer will abut the newly constructed interchange where native habitat currently exists. Therefore, buffer width is reduced appropriately. The surface area of the reach expected to exhibit decreased function is multiplied by the change in Functional Capacity Score (See Appendix A: Table 2 for Riverine Features and Table 3 for Depressional Features).

Expected aquatic function of the proposed mitigation site was calculated by multiplying the expected acreage to be created by the expected Functional Capacity scores to be achieved (See Appendix A: Table 5).

II. METRICS EVALUATED FOR RIVERINE SYSTEMS

A. BUFFER

PERCENTAGE OF ASSESSMENT AREA WITH BUFFER [CRAM]

Definition: The buffer is the upland area extending at least 10 meters (m) horizontally from the immediate edge of the Assessment Area that is in a natural or semi-natural state and currently not dedicated to anthropogenic uses. The buffer can include adjacent wetlands of the same or different class, stream channels, open water, or other aquatic habitats. For the riverine wetland class, the upstream and downstream reaches should be scored as part of the buffer. The height to which the buffer extends above or below the wetland is not considered as part of a horizontal buffer.

Intensive land uses are not buffers (e.g., plowed, agricultural cropland; paved areas; some dirt roads; housing developments, unfenced pastures; landscaped parks; etc.). Mowed areas are considered buffers, but deep-ripped agricultural fields are not considered buffers.

The assessment of this attribute is the same across all wetland classes. Assessment should be conducted first in the office with aerial photographs, then verified in the field.

Table 1.

Metric	Score
< 75 - 100%	1.0
50 - 75%	0.75
25 - 50%	0.50
< 25%	0.10
None	0.0

AVERAGE WIDTH OF BUFFER [CRAM]

Definition: Buffer width is measured in meters of distance away from the wetland along lines-of-sight that are perpendicular to the wetland boundary.

Step 1: Divide the perimeter of the Assessment Area into four sections

Step 2: Estimate the width of the buffer in each of the four sections; maximum value of 100 meters per side.

Step 3: Average the four estimated widths

The assessment of this attribute is the same across all wetland classes. It should be initiated in the office and verified in the field.

Table 2.

Metric	Score
> 100 m	1.0
60 - 100 m	0.75
30 - 60 m	0.50
<30 m	0.10
None	0.0

BUFFER CONDITION [CRAM] / ADJACENT AREA TO CORPS/CDFG JURISDICTION

Definition: Buffer condition is assessed according to its vegetative cover, substrate condition, and based on indicators of disturbance. These conditions are assessed only for the portion of the wetland border that has already been identified or defined as buffer. For two sides with different buffers, score each side and average score. The value closest to the average would then be chosen.

Table 3.

Metric	Score
Area is characterized by natural, undisturbed upland with native vegetation and lack of invasive plants, lack of substrate disturbance, and lack of trash)	1.0
Buffer appears to have been moderately disturbed and may be characterized by presence of invasive plants, etc, minor to moderate amounts of trash or debris visible); abandoned field; shrubland or Buffer recently burned, but recoverable; or dirt road crossing; or mowed, non-native ruderal	0.75
Disced ruderal; dry-land farming; active agriculture	0.50
Dirt road, not recoverable; residential; pastureland; landscaped park	0.25
Buffer is highly disturbed, barren ground visible with highly compacted soils, moderate to high amounts of trash and other large debris); urban or industrial	0.10
No buffer present.	0.0

LAND USE/LAND COVER (LULC) [LLFA]

Four sub-indicators were used to measure the LULC indicator. Each of the sub-indices were measured as the percent of the drainage basin of a riparian reach with LULC types having the potential to increase the nutrient, pesticide, hydrocarbon, or sediment loading in downstream surface waters. The reference standard condition was defined as <5% of the watershed and surrounding landscape area with LULC types with the potential to increase nutrient, pesticide, hydrocarbon, or sediment loading in surface waters downstream. This metric refers to areas adjacent to and upstream from a particular reach. For the features assessed, all LULC within 300 meters was considered. Example stressors include active oil production platforms, septic tanks, unpaved roads, etc. Indicator scores were assigned based on the range of indicator values in the table below.

Table 4.

Metric	Score
<5% of watershed/landscape with LULC types that increase N/P/H/S	1.0
>5 and <15% of watershed/landscape with LULC types that increase N/P/H/S; or recently burned open space	0.75
>15 and <30% of watershed/landscape with LULC types that increase N/P/H/S	0.50
>30 and <50% of watershed/landscape with LULC types that N/P/H/S	0.25
>50% of watershed/landscape with LULC types that increase N/P/H/S	0.10

B. HYDROLOGY

WATER SOURCE [CRAM]

Definition: Source of water describes the primary origin of water input to the wetland and the degree to which water input has been affected or is controlled by anthropogenic activities or land use changes. This metric is assessed at the reach scale, and is influenced by upstream activities. Example stressors are septic tanks, culverts, riprap, etc.

Table 5.

Metric	Score
Water source derived from precipitation, groundwater and/or natural overland or tributary flow from catchment. No indications of artificial water sources.	1.0
Source of water is primarily natural; however, may receive occasional or small amounts of inflow from anthropogenic sources, such as urban runoff, seepage, agriculture or POTW discharge. Natural flow regime.	0.75
Source of water is primarily anthropogenic, and receives inflow from anthropogenic sources, such as urban runoff, seepage, agriculture or POTW discharge. Non-natural flow regime.	0.50
Primarily supported by direct irrigation, pumped water, artificially impounded water, or other artificial hydrology; may be perennialized flow; channel incision present.	0.25
No natural or non-natural flows occur at the present time.	0.0

HYDROPERIOD [CRAM]

Definition: Hydroperiod is the seasonal and (in some wetlands) daily pattern of water level fluctuation. Hydroperiod defines regular changes in the duration, frequency, timing, and extent or depth of inundation or saturation in a wetland.

Office and Field Indicators: This metric evaluates changes in the hydroperiod of a wetland and the degree to which these changes affect the structure and composition of the wetland plant community. Field indicators focus on evaluating changes to the plant community. Office indicators focus on evaluating the physical properties such as slope, flow augmentation or diversion, upstream impoundments, etc.

It is assumed that changes either peak flow or baseflow can affect riverine wetland form and function. However, changes in peak flow will have a more profound effect because of changes to channel slope, hydraulic radius, and width to depth ratio. Decreases in base flow, especially during the dry season, can influence the availability of water for wildlife.

This metric is assessed initially in the office using the site imaging, and then scores are confirmed or adjusted based on the field indicators. Hydroperiod should be evaluated in the office by reviewing maps or aerials of the surrounding watershed for evidence of diversions, flow augmentations, or upstream constrictions. Dams and other upstream impoundments should be considered an alteration if they control more than 25% drainage area upstream of the assessment area or if they are close enough to the assessment area to substantially affect the magnitude or timing of inflows. Diversions should be considered an alteration if they routinely reduce either baseflow or stormflow to the assessment area by more than 15%. Constrictions of the active channel within 1 km (upstream) of the Assessment Area should be considered as hydrologic alterations. The preliminary office assessment is scored using the following:

Table 6.

Metric	Score
Subject to natural peak flows and baseflow.	1.0
Peak flow relatively natural, but baseflows altered either by augmentation or reduction; or Reach has recently burned, but is recoverable- temporary peak flows are anticipated.	0.75
Peak flows altered by upstream activities (augmentation or reduction), but baseflows are relatively natural.	0.50
Assessment area is subject to alteration of both peak flow and baseflow. Recoverable.	0.25
Assessment area is subject to alteration of both peak flow and baseflow. Not recoverable.	0.10

FLOODPLAIN CONNECTION [CRAM]

Definition: Floodplain connection describes the relationship between riverine wetlands and the adjacent floodplain that influences the ability of water to flow into or out of the wetland or to inundate adjacent uplands during high water periods.

Field Indicators: Scoring of this metric is based solely on field indicators. No office work is required. Indicators for floodplain connection in riverine, estuarine, and lagoon wetlands are based on evidence of overbank flow, such as wrack, debris, fine sediment deposits, and evidence of ponding on benches adjacent to the stream or tidal channel. The extent and vigor of adjacent riparian or hydric vegetation can also provide an indicator for this attribute. Finally, structural conditions, such as depth, presence of levees, and condition of the bank can be used to score this attribute.

Table 7.

Metric	Score
Adjacent to an unrestricted floodplain that is comprised of natural or open space lands or agricultural lands	1.0
On most years, storm flows or storm surges can escape the active channel or tidal channels and access adjacent benches, riparian areas, or the marsh plain. However, unnatural levees, berms or adjacent land uses restricts the extent of overbank inundation; or naturally confined channel	0.75
Moderate channel constriction, incision or bank armoring precludes water from accessing adjacent benches, riparian areas or marsh plain, except in very high flows; however, access is still possible; or Agricultural constraint; or adjacent road	0.50
All overbank flow beyond the bankfull channel is contained within a defined conveyance or channel and cannot access adjacent riparian areas, benches or marsh plain	0.25
Channel is channelized and contains concrete or rip-rap slopes/bottom.	0.0

ALTERED HYDRAULIC CONVEYANCE – [LLFA]

This indicator was measured as the percent of the main stem channel through the riparian reach with altered hydraulic conveyance. At the riparian reach and riparian reach tributary scale, aerial photography and field observations were used to estimate the value of the metric. This metric was assessed within a particular reach, and assesses the extent of linear modification of the channel. Stressors within a reach may include road crossings, rip-rap, etc.

The reference condition was defined as <5% of the main stem channel in the riparian reach, or major tributaries to the riparian reach, with altered hydraulic conveyance. Indicator scores were assigned based on the range of indicator values in the table below.

Table 8.

Metric	Score
<5% of riparian reach main stem with AHC	1.0
>5 and <15% of riparian reach main stem with AHC	0.75
>15 and <30% of riparian reach main stem with AHC	0.50
>30 and <50% of riparian reach main stem with AHC	0.25
>50% of riparian reach main stem with AHC	0.1

SURFACE WATER PERSISTENCE / RECHARGE [SMR HGM]**Table 9.**

Measurement	Score
Evidence of surface water ponding/storage on floodplain for greater than one day (intermittent). Substrate porosity is such that runoff persists; floodplain has complex microtopographic relief; or perennially flowing/ saturated; or adjacent wetlands	1.0
Evidence of surface water ponding/storage on floodplain for greater than one day (intermittent). Floodplain has simple microtopographic relief. (Non-wetland floodplain)	0.75
Evidence of surface water ponding/storage for less than one day (ephemeral).	0.50
Assessment area provides no features for ponding/storing water. Variable is recoverable and sustainable through natural processes.	0.25
Assessment area provides no features for ponding/storing water. Variable is not recoverable and sustainable through natural processes under current conditions.	0.0

FLOOD PRONE AREA [SMR HGM]

This metric assesses the extent to which flood flows are impeded. Slope (non-riverine) wetlands would not be subject to the width requirements.

Table 10.

Measurement	Score
Floodprone area not modified by cultural processes. FPA > 2.0x bankfull width.	1.0
Floodprone area confined by artificial structure(s) or culturally accelerated channel incision is minimal; FPA > 2.0x bankfull width; disturbance affects one side of drainage; or naturally v-shaped channels for small drainages	0.75
Floodprone area is artificially confined or culturally accelerated channel incision is present; FPA > 1.5x bankfull width; disturbance affects one side of drainage	0.50
Floodprone area is artificially confined or culturally accelerated channel incision is present; FPA < 1.5x bankfull width; disturbance affects both sides of drainage; variable is recoverable through natural processes under current conditions.	0.25
Floodprone area is artificially confined or culturally accelerated channel incision is present; FPA < 1.5x bankfull width; disturbance affects both sides of drainage Variable is not recoverable through natural processes under current conditions.	0.10
Floodprone area is completely modified by concrete and/or rip-rap; disturbance affects both sides of drainage; variable is not recoverable through natural processes under current conditions.	0.0

C. STRUCTURE – ABIOTIC**SEDIMENT REGIME – [LLFA]**

This indicator was assigned a score by matching field observations to the descriptions in the table below. The reference condition was defined as exhibiting a sediment regime in equilibrium with respect to supply, erosion, and deposition processes, and not affected by cultural alteration.

Table 11.

Metric: Description of Conditions	Score
<p>Movement of sediment in the channel is in equilibrium in terms of supply, erosion, and deposition processes that reflect the culturally unaltered condition. On higher-order streams there are alternating point bars; bank erosion occurs, but is stabilized and moderated by vegetation; and channel width, form, and floodplain area is consistent through the reach. In low-order streams with bedrock control, some of these indicators may not be apparent, but overall bank and hillslope erosion is moderated by vegetation, and there are no apparent culturally induced catastrophic failures.</p>	1.0
<p>Movement of sediment in the channel is in equilibrium with the current hydrologic regime, as opposed to a culturally unaltered condition, and exhibits an overall balance in terms of erosion and deposition processes. On higher-order streams there are alternating point bars; bank erosion occurs, but is stabilized and moderated by vegetation; and channel width, form, and floodplain area are consistent through the reach. In low-order streams with bedrock control, some of these indicators may not be apparent, but overall bank and hillslope erosion is moderated by vegetation, and no culturally induced catastrophic failures are apparent; OR recent fires has temporarily altered (or are expected to alter) sediment regime; less than 15-percent of the watershed exhibits altered hydraulic conveyance where no significant sediment storage or recruitment occurs</p>	0.75
<p>Sediment disequilibrium is minor and localized within the reach. This includes small, localized areas of bank protection, slumping, or encroachment on the floodplain and channel. This condition class also includes previously disrupted reaches on a recovery trajectory, such as deeply entrenched streams where downcutting has been arrested by structural grade control, and there is sufficient room for lateral channel migration and establishment of a functional floodplain within the incised channel; less than 30-percent of the watershed exhibits altered hydraulic conveyance where no significant sediment storage or recruitment occurs</p>	0.50
<p>Sediment erosion and deposition out of equilibrium. Water inflow is sediment rich or poor, or accelerated bank erosion exists. Channel not actively incising, but extensive disequilibrium is evident. Typical indicators include extensive bank slumping (erosion events that exceed any moderating influence of native vegetation), active gullies feeding into the reach from adjacent hillslopes, shoaling of sediments rather than deposition in sorted lateral and mid-channel bars. Apparently stable channels should be placed in this category if there is evidence of regular mechanical disruption, such as bulldozing of the channel bottom and clearing of riparian vegetation to improve flood conveyance; less than 50-percent of the watershed exhibits altered hydraulic conveyance where no significant sediment storage or recruitment occurs</p>	0.25
<p>Sediment dynamics within most of the reach are seriously disrupted. It also includes reaches that are either actively incising or functioning as sediment traps (e.g., sediment basins). This also includes reaches that have been subject to recent changes likely to induce severe disequilibrium, such as extensive floodplain filling, change in slope, channel straightening, or other changes that are likely to cause channel downcutting during future high-flow events ; greater than 50-percent of the watershed exhibits altered hydraulic conveyance where no significant sediment storage or recruitment occurs</p>	0.10

TOPOGRAPHIC COMPLEXITY [CRAM]

Definition: Topographic complexity is the presence or absence of a variety of elevation or depth zones within a wetland that provide niches for fauna, surfaces for growth of a variety of plant species, areas that modify flow/hydrology, and zones that promote biogeochemical processes. This metric is different than abiotic patch richness in that it evaluates the relative abundance or distribution of physical zones within the assessment area, whereas abiotic patch richness addresses solely the number of different habitat types.

Field Indicators: The typical indicators are usually habitat elements or habit features within a wetland class. Care must be taken to distinguish indicators of topographic complexity or habitat features within a wetland from different kinds of wetlands.

Topographic complexity in higher order riverine wetlands can be evaluated by counting the number of features that affect elevation or influence the path of water flow along a transect cross the assessment area. Trampling, filling, burying or other alteration of topographic features will indicate a reduced condition. Lower order riverine wetlands have inherently less topographic complexity (hence less categories) and will have more subtle indicators of topographic complexity, such as large rocks, middens, or accumulations of woody debris. In higher gradient streams, plunge pool sequences may be present.

Table 12.

Metric	Score
Assessment area is dominated by a complex arrangement of micro and macro topographic features, such as meanders, bars, benches, secondary channels, backwaters, roots, pits, and ponds. Higher gradient systems may contain plunge-pool sequences.	1.0
Some macrotopographic features present, such as secondary channels; however, the complexity and interspersion of such features has been reduced by substrate alteration, flooding, grazing, trampling, or placement of fill material; or naturally v-shaped channel is small drainage.	0.75
Assessment area consists of a single channel without macrotopographic features such as benches or secondary channels; however, the channel has microtopographic features such as bars, braiding, and presence of woody debris.	0.50
Assessment area consists of a single channel without macrotopographic features such as benches or secondary channels; however, the channel has microtopographic features such as bars, braiding, and presence of woody debris. Features may be the result of anthropogenic disturbance.	0.25
Assessment area consists of a uniform, straight channel with no substantive topographic features.	0.10

SUBSTRATE CONDITION [CRAM]

Definition: Substrate Condition describes the presence of intact (unaltered) soil that is subject to regular saturation or inundation and exhibits an accumulation of organic matter or coarse litter. Coarse litter consists of the fallen stems, leaves, and other small parts of plants that accumulate on the wetland surface and that can be taxonomically identified.

Field Indicators: Substrate condition in riverine wetlands is evaluated by observing evidence of redoximorphic features, ponding, or organic matter accumulation on the surface or within the top 30 cm of substrate. Special attention should be paid to pits, ponds, or backwaters as well as portion of the floodplain that is within the Assessment Area. Evidence may include leaf litter accumulation, coarse woody debris, dried algal mats, algal coating on sand grains in the channel bed, or organic streaking in the soil horizon. Excessive sediment deposition, filling, downcutting, trampling, or compaction may reduce substrate condition.

Table 13.

Metric	Score
Soils in the assessment area or adjacent to the active channel are relatively intact, show evidence of surficial organic matter accumulation, fallen trees, branches, and twigs or other coarse woody debris, decayed leaf litter, and fine detrital organic matter. Redoximorphic features may be visible within 30 cm of the surface; organic or clay layers may be present within the soil column (top 30cm).	1.0
Channel and adjacent benches are dominated by unconsolidated sand or other poorly formed native soils and/or bedrock outcrops. Substrate may exhibit moderate embeddedness or compaction; lack of organic layers in column; cattle may have had minor to moderate effects on sandy substrates.	0.75
Soils may exhibit some evidence of sparse organic litter or coarse woody debris. However, the assessment areas is mainly characterized by disturbed conditions, such as substantial filling, compaction, tilling, grazing, or similar activity, but appear recoverable with minimal intervention	0.50
Soils are extremely compacted, dominated by imported fill or other predominantly upland (non-native) soils or have been deeply ripped, disced, or drained	0.25
Channel is lined with concrete or rip-rap.	0.0

D. STRUCTURE - BIOTIC

VERTICAL BIOTIC STRUCTURE

Definition: The vertical component of biotic structure consists of the distribution of vegetation among categories of height above the wetland substrate or with depth below the water surface.

Field Indicators: Vertical structure must be assessed in the field. The vertical component of biotic structure is commonly recognized as the overall number and spatial extent of the expected number of typical plant height classes. For some wetlands (e.g., forested riverine and lacustrine wetlands), the height classes are often arranged as overlapping layers or plant strata. In other wetlands, the plant height classes are represented by dispersed and non-overlapping plant patches. Standing live and dead vegetation is considered in the assessment. The length of prostrate stems or shoots, and the horizontal extent of canopies is not considered. Only the vertical aspect of structure is considered in this metric. Use the rules given in the table below to estimate the number of height classes for the assessment area, and the draft scores given below to determine the amount of the Assessment Area that has these height classes.

Table 14a. Rules for Determining Vegetation Height Classes for Each Wetland System

Wetland System	Height Class		
	Tall	Medium	Short
Riverine/Alluvial Scrub	> 3 m	1-3 m	< 1
Depressional, Slope and Seep	>1 (e.g. saplings)	0.3 – 1 m (e.g. Scripus)	< 0.3 m (e.g., Distichlis)

Use the draft scores given below to determine the amount of the Assessment Area that has these height classes.

Table A-14b.

Metric	Score
Most of the Assessment Area supports 3 height classes of vegetation; T/S/H; may also include vines	1.0
About half of the Assessment Area supports 3 vegetative strata and/or most is covered by at least 2 height classes.	0.75
Between one quarter and half of the assessment areas supports 3 vegetative height classes and/or at least half of the site support 2 height classes.	0.50
Less than one quarter of the AA support 3 height classes or < ½ supports 2 height classes or less OR 0-1 height class is present only.	0.25

INTERSPERSION AND ZONATION

Definition: Horizontal biotic structure is commonly recognized as plant zonation and its interspersions. Interspersions are essentially a measure of the amount of edge between plant zones.

Field Indicators: The distribution and abundance of horizontal plant zones plus their interspersions are combined into a single indicator. The zones are usually apparent as different plant patches that signify different elevations or distances away from the usual high water contour of a wetland, such as the shoreline of a lake, bank of a channel, or the transition from the wetland to the adjacent upland. For large wetlands, the prominent zonation is evident in aerial photographs of scale 1:24,000 or smaller. For small wetlands, the zonation is only apparent in the field. The zones may be discontinuous and they can vary in number within a wetland. Plant zones often consist of more than one plant species, but some zones may be mono-specific. In most cases, one plant species dominates each zone. The following table should be used to score wetlands in these classes:

Table 15.

Metric	Score
Riparian canopy	1.0
Undisturbed chaparral/coastal sage scrub occurring along drainage greater than 75%	0.75
2 or more plant zones are apparent along about one quarter to half of the main active channel or shoreline.	0.50
2 or more plant zones are apparent along less than one quarter; OR sparse shrubs in confined/ incised channel.	0.25
Unvegetated channel.	0.10

RATIO N:NN [SMR HGM]

This metric is based on data collected in 10 m X 50 m plots assessed within reaches. The 50/20 Rule was utilized to determine dominant vegetation².

Table 16.

Measurement	Score
75 - 100% of the plant species are native and no stratum is dominated by non-native species.	1.0
50 - < 75% of species are native and/or up to 50% of the strata present are dominated by non-native species.	0.75
25 - < 50% of species are native and/or up to 50% of the strata present are dominated by non-native species.	0.50
10 - < 25 % of species are native and/or up to 50% of the strata present are dominated by non-native species.	0.25
0 - < 10 % of species are native and/or up to 100% of the strata present are dominated by non-native species.	0.10
No vegetation present. Variable is not recoverable and sustainable through natural processes under current conditions.	0.0

² Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1, U.S. Army Engineer Waterways Experimental Station, Vicksburg, Mississippi.

CANOPY [SMR HGM]

For SCR reaches, percent cover was averaged among the total number of plots.

Table A-17.

Measurement	Score
Percent cover of tree layer is $\geq 50\%$	1.0
Percent cover of tree layer is $25\% - <50\%$	0.75
Percent cover of tree layer is $< 25\%$; OR Seep/Slope H layer 100%	0.50
If no trees, percent cover of shrub layer is $\geq 50\%$	0.25
If no trees, percent cover of shrub layer is $< 25\%$	0.10
No vegetation present. Variable is not recoverable and sustainable through natural processes under current conditions.	0.0

AGE DISTRIBUTION [SMR HGM]

This metric assesses the extent of recruitment at a site. Trees were not required for slope (non-riverine) wetlands, and thus the presence of saplings and seedlings would be the high score. This metric applies to wetland indicator species only (e.g., *Salix* sp., *Baccharis* sp., *Populus* sp., *Platanus* sp., etc.). In some cases, *Quercus* sp. may also be included if in multiple layers.

Table 18.

Measurement	Score
Assessment area supports trees, saplings, and seedlings.	1.0
Assessment area supports trees, mature shrubs, saplings or seedlings.	0.75
Assessment area has no trees but does support saplings and/or seedlings; OR S/H for same indicator species.	0.50
Assessment area supports trees/shrubs but no saplings or seedlings are present; Seep/Slope with H layer 100% but no saplings or seedlings.	0.25
Assessment area does not support trees/shrubs, saplings, or seedlings. Variable is recoverable and sustainable through natural processes under current conditions.	0.10
Assessment area does not support trees/shrubs, saplings, or seedlings. Variable is not recoverable and sustainable through natural processes under current conditions.	0.0

RIPARIAN VEGETATION CONDITION – [LLFA]

Under culturally unaltered conditions, a complex interaction of many factors such as the size of the watershed, discharge, channel geometry, substrate type, and slope determine the size of the area that typically supports riparian vegetation. In general, as stream orders increase, the width of the bankfull channel increases, and the size of the area supporting riparian vegetation increases. Floodprone area represents a scaled metric that can be applied consistently in different stream orders throughout a watershed. Floodprone area was determined in the field by projecting the elevation corresponding to two times the maximum depth of the bankfull channel until it intersected the surface of the adjacent floodplain/terrace on both sides of the main stem channel. This indicator was assigned a score by observing the condition of vegetation along the riparian reach and matching these field observations to the descriptions in Table 19. In inaccessible reaches, field observations were supplemented with aerial photography and riparian vegetation community maps developed by URS. The reference standard condition was defined as vegetation represents reference condition with no chronic disturbance or recovered from historical disturbance.

Table 19.

Description of Conditions	Score
Vegetation represents reference condition with no chronic disturbance or recovered from historical disturbance. Presence of areas disturbed through natural processes (i.e., fire and flood) okay.	1.0
Native vegetation recovering with minor chronic disturbance (i.e., grazing). Presence of areas disturbed through natural processes (i.e., fire and flood) okay. Invasive, exotic species may be present.	0.75
Native vegetation common and widespread with moderate grazing pressure. Presence of areas disturbed through natural processes (i.e., fire and flood) okay. Invasive, exotic species may be present.	0.50
Native vegetation localized with heavy grazing pressure. Presence of areas disturbed through natural processes (i.e., fire and flood) okay.	0.25
Native vegetation absent, area hardened (i.e., paved, urban, etc.) or graded. Restoration impractical and unlikely for economic or political reasons.	0.0

RIPARIAN CORRIDOR CONTINUITY [LLFA]

This indicator was measured at the riparian reach scale as the percent of floodprone area along the main stem channel of the riparian reach occupied by native and non-native vegetation communities with adequate height and structure to allow faunal movement. For example, annual grassland with no shrub or tree component was considered to represent a corridor gap. The difference between this indicator and Area of Native Riparian Vegetation was that for the RCC indicator, the vegetation corridor could be composed of native or non-native riparian species, whereas for the NRV indicator, only native riparian vegetation communities were considered. The reference condition was defined as <5% of the floodplain of the main stem channel of the riparian reach occupied with riparian vegetation communities. Indicator scores were assigned based on the range of indicator values in the table below.

Table 20. Range of Indicator Values for Scaling the Riparian Corridor Continuity Indicators

Indicator Value Range	Score
<5% of riparian reach with gaps/breaks in vegetation due to cultural alteration	1.0
>5 and <15% of riparian reach with gaps/breaks in vegetation due to cultural alteration	0.75
>15 and <30% of riparian reach with gaps/breaks in vegetation due to cultural alteration	0.50
>30 and <50% of riparian reach with gaps/breaks in vegetation due to cultural alteration	0.25
>50% of riparian reach with gaps/breaks in vegetation due to cultural alteration	0.10

INVASIVE, EXOTIC PLANT SPECIES - [LLFA]

Plants would be required to be on the Cal-IPC list of invasive species (List A1, A2, B). Percent cover measurements are based on plot data within a given reach. Average cover for each included species was determined per T-S-H layer(s), and then summed to give the total cover per given plot. This indicator was assigned an index by matching field observations to the description of condition in Table 21. The reference standard condition was defined as exotic plant species absent or rare composing ≤5% total vegetation.

Table 21. Description of Condition and Index for Invasive Plant Species Indicator

Description of Condition	Index
Invasive plant species absent or rare composing ≤5% total vegetation	1.0
Invasive plant species present but localized and composing >5 and ≤20% of vegetation	0.75
Invasive plant species common and composing >20 and ≤50% of vegetation	0.50
Invasive plant species widespread and composing >50 and ≤75% of vegetation	0.25
Invasive plant species dominant and composing >75% of vegetation; recoverable	0.10
Invasive plant species dominant and composing >75% of vegetation; not recoverable.	0.0
*If invasive plant species are dominant outside of plots but within reach, score may be reduced by one level.	

III. METRICS EVALUATED FOR ISOLATED SLOPE WETLAND, SEASONAL PONDS AND STOCK PONDS

The HFA developed by URS and cited in footnote 1 above, addressed Riverine Wetlands as well as Depressional, Lacustrine, and Slope/Seep Wetlands. Seasonal pools and ponds were not specifically addressed and only four metrics, Hydroperiod, Topographic Complexity, Substrate Condition, and Vertical Biotic Structure, were included as metrics in the URS HFA, with no distinction between Depressional, Lacustrine, and the Slope/Seep Wetlands. As such, modification of the approach to more accurately address slope wetlands, seasonal ponds and perennial ponds associated with the proposed project was necessary. Therefore, where applicable for this HFA, the methods for assessing each metric have included modification to address the hydrologic, biogeochemical, and habitat functions associated with slope wetland, seasonal pools and perennial ponds as set forth below (with the corresponding HFA function italicized in parenthesis):

Hydrology

Surface Water Storage in Pool (*Hydroperiod and Surface Water Persistence*)
Subsurface Water Exchange (*Not Applicable*)³
Surface Water Conveyance (*Source*)

Biogeochemical (*Generally addressed under Land Use/Land Cover and Substrate Condition*)

Element Cycling
Element Removal

Habitat Support

Maintains Characteristic Vegetation (*Ratio Native to Non-Native and Wetland Vegetation Condition*)
Maintains Characteristic Aquatic Invertebrates
Maintains Amphibian and Avian Populations
Maintains Populations of Special-Status Plants (*Special Status Plants*)
Maintains Habitat Interspersion and Connectivity (*Buffer Width and Condition*)

Each of these functions is addressed in or described by the metrics as set forth below.

³ Exclusion of "Subsurface Water Exchange" is due to the nature of the soils in the study area. Specifically, the clays throughout much of the study area are classed as vertisols, which typically exhibit an epiaquic moisture regime meaning that they rapidly seal at the surface, precluding saturation below the upper few inches of the soil surface which in turn limits that potential for subsurface exchange between or among pools.

A. BUFFER-RELATED FUNCTIONS

AVERAGE WIDTH OF BUFFER

Definition: Buffer width is measured around the perimeter of the slope wetland, seasonal pool or stock pond.

This metric should be initially assessed using GIS and verified in the field as needed.

Table 22 - Average Width of Buffer

Metric	Score
300 feet or greater	1.0
90 to 300 feet	0.75
45 to 90 feet	0.25
10 to 45 feet	0.10
Less than 10 feet	0.0

BUFFER CONDITION [CRAM] / AREA ADJACENT TO AQUATIC FEATURE

Definition: Buffer condition is assessed according to vegetative cover, substrate condition, and indicators of disturbance. These conditions are assessed only for areas adjacent to the seasonal pool or stock identified or defined as buffer. Where more than one buffer condition occurs adjacent to the pool OR SEEP, the score was calculated proportionally based on the buffer conditions with score closest to the Metric Value chosen.

Table 23 – Buffer Condition

Metric	Score
Area is characterized by natural, undisturbed upland with native vegetation and lack of invasive plants, lack of substrate disturbance, and lack of trash)	1.0
Buffer appears to have been moderately disturbed and may be characterized by presence of invasive plants, etc, minor to moderate amounts of trash or debris visible); abandoned field; shrubland or Buffer recently burned, but recoverable; or dirt road crossing; or mowed, non-native ruderal	0.75
Disced ruderal; dry-land farming; active agriculture	0.50
Dirt road, not recoverable; residential; pastureland; landscaped park	0.25
Buffer is highly disturbed, barren ground visible with highly compacted soils, moderate to high amounts of trash and other large debris); urban or industrial	0.10
No buffer present.	0.0

B. HYDROLOGIC FUNCTIONS

WATER SOURCE [CRAM]

For slope wetlands, seasonal pools or stock ponds, each feature and its associated watershed is considered individually. For purposes of this HFA, the necessary watershed to support a pool was generally assumed to total seven times the pool area (basin area included in the calculation). For example, a basin that covers one acre would require a watershed of seven acres or six additional acres including the one acre of basin area.

Table 24 – Water Source

Metric	Score
Watershed intact and water source derived from direct precipitation and/or natural overland or tributary flow from immediate watershed. No indications of artificial water sources, including dry-weather flows.	1.0
Watershed intact; however source of water is primarily natural; however, may receive occasional or small amounts of inflow from anthropogenic sources, such as urban runoff, agricultural discharge.	0.75
Watershed reduced by 25-50 percent. Water source derived from direct precipitation with occasional input from urban or agricultural sources during rainy season. No dry-weather nuisance flows.	0.50
Regardless of watershed size, source of water is primarily anthropogenic, and receives inflow from anthropogenic sources, such as urban runoff or agriculture. Non-natural flow regime including storm runoff.	0.10

HYDROPERIOD [CRAM] - RIVERINE AND FLOODPLAIN

Hydroperiod for slope wetlands and depressional wetlands were evaluated based on a review of surrounding land uses and evidence of any diversions or augmentations of flow to the vernal pool. To the extent available, historic aerial photographs and direct observations of ponding were used to inform the scores. Some of the features being evaluated may only pond a few times each decade; however, this is their “natural” hydroperiod. While many of the pools associated with the floodplain have been subject to direct hydrological observations or historic aerial photographic analysis, the plant community of each basin remains the best tool for assessing this function.

Table 25 – Hydroperiod

Metric	Score
Subject to natural hydroperiod; the “natural flow regime.”	1.0
Hydroperiod minimally altered; however alteration has little to no effect on plant community as evidenced by a lack of indicators.	0.75
Hydroperiod moderately altered such that it affects the plant community.	0.50
Hydroperiod severely altered such that plant community is substantially modified. Variable is recoverable.	0.25
Hydroperiod severely altered such that plant community is substantially modified. Variable is not recoverable.	0.10

SURFACE WATER PERSISTENCE [SMR HGM]

For slope wetlands, seasonal pools or stock ponds this indicator measures persistence of surface water at each feature. This indicator was measured using a combination of aerial photographs with direct observations of ponded water/surface water persistence and/or by the predominance of wetland vegetation.

Table 26– Surface Water Persistence

Measurement	Score
Evidence of surface water ponding/storage within vernal pools for very long duration (greater than 30 days) during average rainfall years. Substrate porosity is such that precipitation and local runoff persists; depressional feature supports a predominance of hydrophytes.	1.0
Evidence of surface water ponding/storage within vernal pools for long duration (greater than 7 days) during average rainfall years. Substrate porosity is such that precipitation and local runoff persists; depressional feature supports a predominance of hydrophytes.	0.75
Evidence of surface water ponding/storage for less than seven days during normal rainfall years (ephemeral).	0.50
Assessment area provides no features for ponding/storing water. Variable is recoverable and sustainable through natural processes.	0.25
Assessment area provides no features for ponding/storing water. Variable is not recoverable and sustainable through natural processes under current conditions.	0.0

C. BIOGEOCHEMICAL FUNCTIONS

LAND USE/LAND COVER (LULC) [LLFA]

As applied to slope wetlands, seasonal pools and stock ponds, this metric refers to areas adjacent to and upstream/upgradient from the seep, pool or pond within the 100-year floodplain. Example stressors include dryland and agriculture fields with varying degrees of fertilization and pesticide control. Indicator scores were assigned based on the range of indicator values in the table below.

Table 27 – Land Use/Land Cover

Metric	Score
<5% of watershed/landscape with LULC types that increase N/P/F	1.0
>5 and <25% of watershed/landscape with LULC types that increase N/P/F	0.75
>25 and <50% of watershed/landscape with LULC types that increase N/P/F	0.50
>50 and <75% of watershed/landscape with LULC types that N/P/F	0.25
>75% of watershed/landscape with LULC types that increase N/P/F/H/S	0.10

SUBSTRATE CONDITION [CRAM]

Definition: Substrate Condition describes the presence of intact (unaltered) soil that is subject to regular saturation or inundation and exhibits an accumulation of organic matter or coarse litter. Coarse litter consists of the fallen stems, leaves, and other small parts of plants that accumulate on the wetland surface.

Substrate condition in slope wetlands, seasonal pools or stock ponds were typically evaluated by observing evidence of redoximorphic features, ponding, or organic matter accumulation on the surface or within the top 30 cm of substrate. Evidence may include dried algal mats, soil cracking, or salt accumulation. Excessive discing, fertilization, agricultural activities, trampling, or compaction from off road vehicle use generally reduce substrate condition.

Table 28 – Substrate Condition

Metric	Score
Soils in the assessment area are relatively intact, show no evidence of past agricultural or grazing activities including discing, irrigation, dry-land farming or fertilization of any sort. Redoximorphic features may be visible within 30 cm of the surface.	1.0
Soils in the assessment area are relatively intact with some evidence of past dry-land agriculture, grazing or occasional discing. Evidence of recent fertilization is lacking.	0.75
Soils in the assessment area subject to regular discing and dryland farming with no permanent irrigation for crops such as alfalfa or turfgrass. Fertilization has been light or sporadic.	0.50
Soils in the assessment area are subject to intensive agriculture including fertilization, irrigation, and intensive crop production such as alfalfa, turfgrass etc.	0.25

D. HABITAT FUNCTIONS

RATIO N:NN [SMR HGM]

This metric is based on vegetation data collected during the jurisdictional delineation. The 50/20 Rule was utilized to determine dominant vegetation. In addition, based on field observations, relative cover of non-native species such as sharp-leave timothy or curly dock was evaluated and considered for purposes of scoring this metric.

Table 29 – Ratio N:NN

Measurement	Score
75 – 100% of the plant species are native based on predominance and less than 10% of relative cover consists of non-native species.	1.0
50 - < 75% of species are native based on predominance and less than 25% of relative cover consists of non-native species.	0.75
25 - < 50% of species are native based on predominance and less than 50% of relative cover consists of non-native species.	0.50
10 – < 25 %of species are native based on predominance and 50-75% of relative cover consists of non-native species.	0.25
0 - < 10 % of species are native based on predominance and greater than 75%.	0.10
No native vegetation present.	0.0

WETLAND VEGETATION CONDITION – [LLFA]

This indicator was assigned a score by observing the condition of vegetation in the assessment area and matching these field observations to the descriptions in Table 30. The reference standard condition is defined as expected vegetation condition with no measurable disturbance.

Table 30 - Wetland Vegetation Condition

Description of Conditions	Score
Vegetation represents reference condition with no measurable disturbance or recovered from historical disturbance.	1.0
Native vegetation recovering with minor disturbance (i.e., grazing). Ongoing disturbance from agriculture or other ground-disturbing practices absent.	0.75
Native vegetation common and widespread with moderate grazing pressure or agricultural practices. Non-native species common. Invasive, exotic species may be present.	0.50
Native vegetation localized with conversion to agricultural uses including fertilization. Non-native species predominate. Invasive, exotic species may be present.	0.25
Native vegetation absent, variable not recoverable.	0.0

V. RESULTS

As described above, Functional Capacity Units (FCUs) are quantified by multiplication of the feature's Functional Capacity Score (x out of 21 total points) and the total jurisdictional acreage to be impacted. Approximately 3.0 FCUs will be lost as a result of direct impacts, and 6.6 FUs will be lost as a result of indirect impacts. Following restoration, features subject to temporary impacts are expected to provide aquatic function at a level similar to that provided prior to impact. The direct and indirect loss in on-site functional units will be mitigated through creation of 1.0 acre of southern willow woodland within the coastal zone. This mitigation is expected to create 15.6 FCU's.

Table 31 summarizes the loss of functional capacity expected to occur with implementation of the proposed FTC-S project. Table 32 summarizes the functional capacity expected to be created through the proposed mitigation program.

Table 31: Permanent Loss of Functional Capacity in Coastal Zone

Direct Loss of Functional Capacity	Indirect Loss of Functional Capacity	Total Loss of Functional Capacity Units
3.0	6.6	9.6

Table 32: Gains in Functional Capacity as a Result of Mitigation

Feature	Post-Mitigation Score (21 Possible)	Acres	Gain of FCU's
Coastal Mitigation Site	15.6	1.0	15.6

TABLE 1: SOCTIIP Functional Assessment
Direct Impact (CCC Jurisdiction)

Feature	Buffer Functions					Hydrologic Functions					Biogeochemical Functions					Total Area Points by Function Type										Totals			
	Percent Buffer	Buffer Width	Buffer Condition	LULC	Score	Hydro period	Floodplain Connection	Altered Hydrologic Connectivity	Surface Water Persistence	Flood prone area Adj.	Sediment Regime	Topographic Complexity	Substrate	Vertical Structure	Zonation	Native	Canopy	Age	Riparian Condition	Riparian Corridor	Invasive Plants	Buffer	Hydro	BioGeo	Habitat	Total Points (2)	Acres ¹	Acres Points	
FE7 SAN MATEO CREEK	1.00	0.75	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75	1.00	1.00	1.00	0.02	0.03	0.02	0.05	-20.0	0.01	-0.1
FE7 SAN MATEO MARSH	1.00	0.75	0.75	0.75	0.75	1.00	0.75	0.75	1.00	0.75	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.02	0.03	0.02	0.05	-20.0	0.01	-0.1	
FE7 SAN MATEO MARSH EAST OF L5	0.75	0.75	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.40	0.85	0.40	1.18	-19.3	0.15	-2.83	
FE7 SAN ANTONIO CREEK	0.75	0.75	0.75	0.75	0.75	0.60	0.75	0.75	1.00	0.60	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.75	1.00	0.61	0.60	0.61	0.64	-17.0	0.61	-0.1	
SAN ANTONIO CREEK WATERSHED SUBTOTALS																						0.44	0.90	0.43	1.28		0.16	-3.03	

¹ Acres = total area within disturbance footprint

TABLE 3: SOCTIIP FUNCTIONAL ASSESSMENT
Indirect Impact - Depressional Wetlands (CCC Jurisdiction)

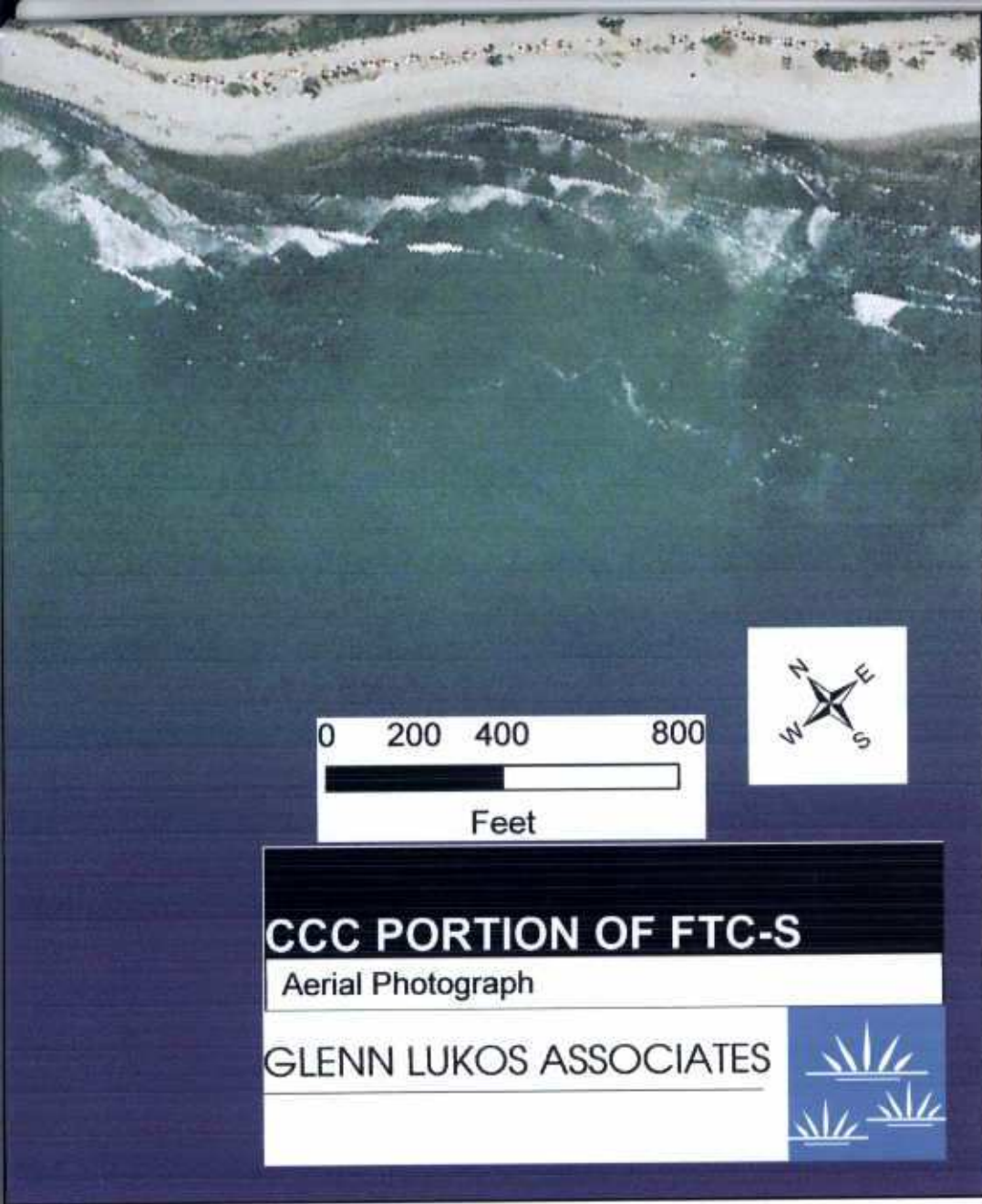
Feature	Buffer Functions		Hydrologic Functions			Biogeochemical Functions			Habitat Functions		Totals	
	Buffer Width	Buffer Condition	Source	Hydro period	Surface Water Persistence	LULC	Substrate	Native	Wetland Vegetation Condition	Total Points (9)	Acres	Acres* Points
FE/7-VM20	-0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	0.05	-0.01
FE/7 VP3	-0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.25	0.18	-0.05
Total										-0.50	0.23	-0.06

TABLE 4: SOLTIP Functional Assessment
Temporary Impact (CCC Jurisdiction)

Feature	Buffer Functions					Hydrologic Functions					Biogeochemical Functions					Total Aest/Points by Function Type											Totals	
	Perennial Buffer	Buffer Width	Buffer Condition	LULC	Source	Hydro period	Floodplain Connection	Altered Hydraulic Connectivity	Surface Water Persistence	Flood prone Area	Sediment Regime	Topographic Connectivity	Substrate	Vertical Structures	Zonation	Native	Canopy	Age	Riparian Condition	Riparian Corridor	Invasive Plants	Buffer	Hydro	BioGeo	Habitat	Total Points (L)	Acres	Acres/Points
FE7 SAN MATEO CREEK	1.00	0.75	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75	1.00	1.00	21.00	23.00	11.00	44.00	50	0.75	-111.0
FE7 SAN MATEO MARSH EAST OF L6	0.75	0.75	0.50	0.75	0.75	1.00	1.00	1.00	1.00	1.00	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.45	5.12	2.45	7.12	19	0.89	-17.13
FE7 SAN ANTONIO CREEK	0.75	0.75	0.75	0.75	0.75	0.50	0.75	0.75	1.00	0.65	0.75	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.75	0.75	1.00	2.69	4.40	2.69	7.08	17	1.08	-17.9
SAN MATEO CREEK WATERSHED SUBTOTALS																						26.84	42.84	21.15	59.66	55	7.89	-149.99

TABLE 5: SOCTIP FUNCTIONAL ASSESSMENT
Creation - Mitigation Areas (CCC Jurisdiction)

Feature	Buffer Functions				Hydrologic Functions							Biogeochemical Functions							Totals				
	Percent Buffer	Buffer Width	Buffer Condition	LULC Source	Hydro period	Floodplain Connection	Altered Hydraulic Conveyance	Surface Water Persistence	Flood prone Area	Sediment Regime	Topographic Complexity	Substrate	Vertical Structure	Zonation	Native	Canopy	Age	Riparian Condition	Riparian Corridor	Invasive Plants	Total Points (21)	Acres	Acres* Points
Coastal Mitigation Site	0.78	0.89	0.28	0.10	0.78	1.00	1.00	0.78	1.00	0.78	0.78	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.78	1.00	17.10	1.00	17.10
GRAND TOTAL						1.00	1.00	0.78	1.00	0.78				1.00	1.00	1.00	1.00				1.00	1.00	17.10



0 200 400 800
Feet



CCC PORTION OF FTC-S

Aerial Photograph

GLENN LUKOS ASSOCIATES



0 200 400 800



Feet



FOOTHILL TRANSPORTATION CORRIDOR - SOUTH

Topographic Map

GLENN LUKOS ASSOCIATES



Bonterra

CONSULTING

An Environmental Planning, Resource
Management Corporation



August 7, 2007

Ms. Maria Levario
Acting Director, Environmental and Planning
Transportation Corridor Agencies
125 Pacifica
Irvine, CA 92618

VIA EMAIL AND MAIL
levario@sjhtca.com



Subject: Vegetation Shading Analysis for the Proposed San Mateo, San Onofre,
and San Juan Creek Bridge Structures for the Foothill Transportation
Corridor-South Project

Dear Ms. Levario:



This analysis of the potential shading impacts from the preferred alternative is based on the engineering plans of the proposed bridge structures over San Mateo, San Onofre, and San Juan creeks, and previous analysis of shading impacts at two of the bridge locations. Coincidentally, the existing bridges at San Mateo and San Onofre Creeks were evaluated in the "Revised Shading Study Associated with Two Proposed Bridges, Spanning Existing Wetlands on the Marblehead Coastal Site, San Clemente, California", prepared by Glenn Lukos Associates (GLA December 4, 2001). The findings in the GLA document were utilized in support of the California Coastal Commission Coastal Development Permit for the Marblehead Coastal project currently under construction. The following table outlines the existing bridge conditions and the proposed bridge expansions.



The GLA report concluded, based on transect data collected along the southern edge of the creek directly beneath the north-bound bridge and immediately upstream, that the vegetation beneath of the San Mateo Bridge exhibited similar canopy cover compared to those areas outside the shaded areas of the San Mateo Bridge. Resources adjacent, and under, the existing San Onofre Bridge include southern riparian scrub and associated hydrophytic vegetation. In summary, there was no distinguishable difference between areas that were shaded by the bridge structure, or not shaded by the bridge structure. The GLA report did not analyze San Juan Creek; however, findings from the other bridges have been applied to potential impacts at San Juan Creek.

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EXISTING BRIDGE CONDITIONS AND THE PROPOSED BRIDGE EXPANSIONS

Creek Crossing	Existing Bridge Length (approx.)	Existing Bridge Width (approx.)	Existing Bridge Height Above Grade (approx.)	Proposed Bridge Length Over USACE Ordinary High Water Mark (approx.)	Proposed Bridge Width (approx.)	Proposed Bridge Height Above Grade (approx.)
San Mateo	500 feet	165 feet (including 30 feet gap between the two separate bridge spans)	55 feet	Southbound Connector – 300 feet, (615 will occur above the existing I-5/San Mateo Creek bridge) Northbound Connector – 920 feet, none of which occurs over the existing I-5/ San Mateo Creek bridge	Southbound Connector – 42 feet wide Northbound Connector – 42 feet	Southbound Connector 82 feet above existing grade, and 28 feet above the I-5 Northbound Connector 43 feet above grade
San Onofre	354 feet	165 feet (including 30 feet gap between the two separate bridge spans)	30 feet	90 feet on both the northbound and southbound lanes	40 feet on both the northbound and southbound lanes	30 feet
San Juan	N/A ¹	N/A	N/A	2,100 feet	91 feet	Maximum/Minimum Height above existing ground = 49.3/41.6 feet

The proposed northbound connector will span San Mateo Creek. At the crossing location, the creek vegetation consists of southern riparian scrub and associated understory vegetation, similar to the vegetation at the existing I-5/San Mateo Creek Bridge. Based on the similarity of the height of the existing I-5/San Mateo Creek Bridge and the proposed northbound connector, it is expected that the construction of the proposed project would not have a measurable impact on the existing riparian vegetation under the proposed northbound connector.

Approximately 960 feet of the southbound connector will similarly not have a measurable impact on the vegetation underneath the connector based on the comparison of the existing vegetation of the I-5/San Mateo Creek Bridge and those resources that will be bridged by the southbound connector. However, a small segment of the southbound connector will be constructed over the existing bridge structure at the I-5/San Mateo Creek, which would increase the shading in the San Mateo Creek beyond the current conditions. This area of 0.38 acre (42 feet wide, 400 long) would contribute to additional shading within the San Mateo Creek area. However, this is not a substantial increase and therefore, no significant changes to the vegetation community under the southbound connector are expected.

The proposed expansion of the bridge at San Onofre Creek will be similar to the existing I-5/San Onofre Creek Bridge. Based on the similarity of the height of the existing I-5/San Onofre Creek Bridge and the proposed expansion, the construction of the proposed project would not have a measurable impact on the existing riparian vegetation under the proposed San Onofre Creek Bridge.

¹ N/A = not applicable. Bridge does not currently exist.

Ms. Maria Levario
August 7, 2007
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No bridge currently exists across San Juan Creek in the vicinity of the preferred alternative. The proposed bridge will be approximately 2,100 feet long, and 91 feet wide, and over 49 feet above natural grade at its maximum height. Since the height of the proposed bridge is similar to the existing 1-5 bridge height at San Mateo Creek, there would not be a substantial amount of shading and the minimal amount of shading would not significantly alter the vegetative resources under the bridge.

If you have any comments or questions, please contact me at (714) 444-9199.

Sincerely,

BONTERRA CONSULTING

A handwritten signature in cursive script, reading "Ann M. Johnston".

Ann M. Johnston
Principal, Biological Services